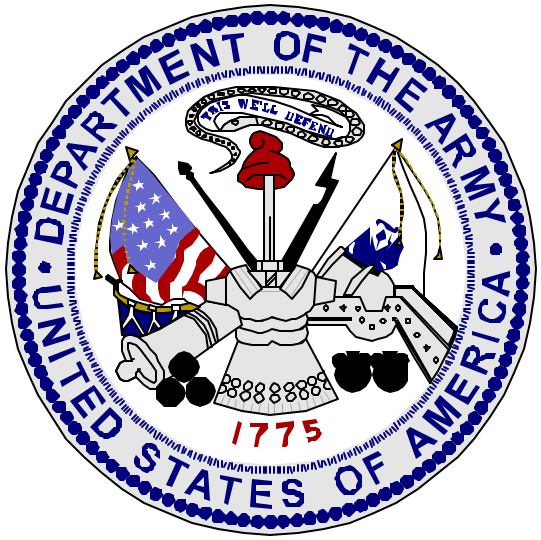
Final
Environmental Assessment
for the Residential Communities Initiative
at
Forts Eustis, Story, and Monroe, Virginia



Prepared for

Commander, Forts Eustis and Story, Virginia
Commander, Fort Monroe, Virginia

by

US Army Corps of Engineers
Mobile District

with Technical Assistance from

Tetra Tech, Inc
Fairfax, Virginia 22030
June 2003

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) addresses the proposed action to implement the Residential Communities Initiative (RCI) at Forts Eustis, Story, and Monroe, Virginia. As required by Title 32 of the *Code of Federal Regulations* Part 651 and the National Environmental Policy Act, the potential environmental and socioeconomic impacts are analyzed.

An ***EXECUTIVE SUMMARY*** briefly describes the proposed action, environmental and socioeconomic consequences, and mitigation measures.

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SECTION 7.0: ***LIST OF PREPARERS*** identifies the persons who prepared the document.

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ACRONYMS AND ABBREVIATIONS

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ENVIRONMENTAL ASSESSMENT
IMPLEMENTATION OF THE ARMY RESIDENTIAL COMMUNITIES INITIATIVE
AT FORTS EUSTIS, STORY, AND MONROE, VIRGINIA

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June 13, 2003

ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: Forts Eustis, Story, and Monroe, Virginia

TITLE OF PROPOSED ACTION: Implementation of the Army Residential Communities Initiative at Forts Eustis, Story, and Monroe, Virginia.

AFFECTED JURISDICTION: The city of Newport News, Virginia, the city of Virginia Beach, Virginia, and the city of Hampton, Virginia.

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ABSTRACT: This Environmental Assessment (EA) considers the proposed implementation of the Army's Residential Communities Initiative at Forts Eustis, Story, and Monroe, Virginia. The EA identifies, evaluates, and documents the effects of obtaining private sector funding for construction, maintenance, management, renovation, replacement, rehabilitation, and development of family housing and ancillary supporting facilities. A no action alternative is also evaluated. Implementation of the proposed action is not expected to result in significant environmental impacts. Therefore, preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact (FNSI) will be published in accordance with the Army's NEPA regulation.

REVIEW COMMENT DEADLINE: The EA and Draft FNSI are available for review and comment for 30 days, beginning June 20, 2003 through July 20, 2003. Copies of the EA and Draft FNSI are available on the Internet at http://www.eustis.army.mil or http://fort.monroe.army.mil/monroe. Copies also have been provided to the following local libraries—Grissom Library, Newport News, Virginia; Central Library, Virginia Beach, Virginia; and Phoebus Branch Library, Hampton, Virginia. Comments should be addressed to Mr. Richard Muller, US Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, Virginia 23510-1096 (Email: richard.j.muller@usace.army.mil). Comments must be received by 4:30 p.m., Eastern Daylight Time, July 20, 2003.

EXECUTIVE SUMMARY

INTRODUCTION

The Army operates and maintains approximately 90,000 family housing units at its installations throughout the United States. More than 75 percent of the units do not meet current Army housing standards. Despite this, at most installations demand for adequate housing on post exceeds supply. The lack of adequate on-post housing forces many soldiers and their families to live in housing in need of repair or renovation or to live off-post where the cost and quality of housing vary considerably. Often, the costs to soldiers and their families to live off-post are 15 to 20 percent greater than the costs to live on-post. The Army estimates that as much as $6 billion would be needed to bring its housing up to current standards and to address the deficit of housing.

In recognition of these problems, Congress enacted Section 2801 of the 1996 Defense Authorization Act (Public Law 104-106, codified at Title 10 of the *United States Code* [U.S.C.] Sections 2871-85). Also known as the Military Housing Privatization Initiative (MHPI), this provision of law creates alternative authorities for improvement and construction of military family housing. The legislative intent of Congress in enacting these additional authorities is to enable the military to obtain private sector funding to satisfy family housing requirements. By leveraging scarce public funding, the Army can obtain private sector funds for construction, maintenance, management, renovation, replacement, rehabilitation, and development of Army family housing and ancillary supporting facilities.[1] The Army's implementation of the MHPI authorities is known as the Army Residential Communities Initiative (RCI).

BACKGROUND

Fort Eustis encompasses 8,228 acres and borders the city of Newport News, Virginia. The US Army Transportation Center at Fort Eustis, a major subordinate command of the US Army Training and Doctrine Command (TRADOC), provides training in rail, marine, and amphibious operations and other modes of transportation. The installation has approximately 7,487 active duty military personnel and 3,013 civilian personnel. Fort Story encompasses 1,452 acres and borders the city of Virginia Beach, Virginia, and Seashore State Park. The installation is the Army's only training facility for logistics-over-the-shore operations to train troops on amphibious equipment and to practice transferring cargo from ship to shore. Fort Story has approximately 635 active duty military personnel and 174 civilian personnel. Fort Monroe encompasses 568 acres in the city of Hampton, Virginia. It is the home of the headquarters of TRADOC as well as the Northeast Regional Office of the Installation Management Agency. It has approximately 2,348 active duty military personnel and 1,295 civilian personnel.

The age and condition of family housing units at Forts Eustis, Story, and Monroe vary. Most of the family housing at Fort Eustis was built between 1958 and 1962; older units at Fort Eustis date back to 1941. The Capehart housing at Fort Story was built in 1958, and the stand-alone units were built between 1917 and 1958. Fort Monroe's Wherry housing was constructed in 1952, and its non-Wherry historic housing was constructed between 1819 and 1943. Approximately 80 percent of the housing units at Fort Eustis were constructed before 1960, and all of the housing units at Fort Story and Fort Monroe were built before 1960.

[1] According to 10 U.S.C. § 2871, the term *ancillary supporting facilities* means "facilities related to military housing units, including child care centers, day care centers, tot lots, community centers, housing offices, dining facilities, unit offices, and other similar facilities for the support of military housing."

PROPOSED ACTION AND ALTERNATIVES

Consistent with the MHPI authorities, Forts Eustis, Story, and Monroe propose to transfer responsibility for providing housing and ancillary supporting facilities to Forts Eustis, Story, and Monroe Family Housing, LLC (FESMFH), a limited liability company composed of the Army and J.A. Jones Community Development, Inc. The installations would convey all military housing units and selected ancillary support facilities and grant FESMFH a 50-year ground lease for the areas on which the housing and facilities are located. The installations would also lease additional areas for FESMFH's use to construct new housing and to operate ancillary supporting facilities.

The purpose of the proposed action is to improve military family housing at Forts Eustis, Story, and Monroe. The proposed action is needed at the installations to provide affordable, quality housing and ancillary supporting facilities to soldiers and their families. The action would be implemented by improving existing housing and by eliminating the present deficit in the number of available family housing units at the installations. Forts Eustis, Story, and Monroe would expect FESMFH to achieve the following goals:

- Ensure that eligible soldiers and their families have access to quality, attractive, and affordable housing by upgrading inadequate existing family housing and by building new housing to address the family housing deficit at Forts Eustis, Story, and Monroe.
- Improve the appearance and functions of the residential community, while preserving historic properties, protecting cultural resources, and meeting environmental stewardship responsibilities.
- Provide ancillary supporting facilities that enhance the residential communities at Forts Eustis, Story, and Monroe.
- Maintain positive relations with the communities that surround the installations.
- Provide for the effective management and operation of existing, renovated, and new housing units and ancillary supporting facilities on a long-term basis.

Development of the Community Development and Management Plan (CDMP) was an iterative process that was fine tuned to meet the housing needs of Forts Eustis, Story, and Monroe for attaining affordable, quality housing and other facilities as well as minimizing or avoiding any potential environmental impacts. An excerpt from the CDMP is provided in Appendix A of the Environmental Assessment (EA). In accordance with the CDMP, Forts Eustis, Story, and Monroe propose to:

- Convey 1,504 existing dwelling units on the three installations to FESMFH and provide FESMFH with a 50-year land lease of approximately 457 acres. Figures 2-1, 2-2, and 2-3 of the EA show the RCI "footprints" within the installation cantonment areas.
- Convey existing housing maintenance facilities and lease the underlying land.

Implementation of the CDMP would include decreasing the on-post housing inventory at Fort Eustis by 78 units to provide an end-state inventory of 874 units, increasing the inventory at Fort Story by 87 units to provide an end-state inventory of 250 units, and decreasing the inventory at Fort Monroe by 117 units to provide an end-state inventory of 272 units. The mix of family housing on the installations would be revised to better meet current soldier family requirements, addressing the deficit of 3- and 4-bedroom units, renovating/improving retained units, and providing landscaping improvements, parks, and playgrounds. FESMFH would construct 1,212 new units and demolish 1,317 units. FESMFH would renovate 1 existing housing unit (at Fort Story) and complete revitalization of non-Wherry historic housing units at Fort Monroe.

Implementation of the CDMP would have FESMFH operate and maintain all family housing for a period of 50 years, as well as construct, operate, and maintain ancillary supporting facilities.

Alternatives to the proposed action that were considered include partial privatization, in which only a portion of family housing would fall under the RCI. Army housing in good condition could remain subject to Army management. This alternative, however, would delay actions to provide adequate housing for some soldiers and their dependents, would not be cost efficient, and, thus, would not fully meet the Army's purpose of and need for the proposed action. Under an alternative in which Forts Eustis, Story, and Monroe would rely wholly on the private sector for family housing needs, the installations would terminate family housing programs, dispose of existing family housing units, and convert the land supporting housing areas to other uses. Reliance solely on the private sector would create conditions leading to poor morale, and abandonment of existing on-post family housing would not be fiscally responsible. When it comes to the alternative of leasing property, two key statutory authorities come into play: "Section 801 Housing" (long-term leasing of housing) and "Section 802 Housing" (rental guarantees for housing). Although use of either or both of these authorities would be possible, their use would not be reasonable when compared to the far more flexible and economic advantages of the new authorities offered by the RCI to the Army and to soldiers' families. Accordingly, these alternatives were considered unreasonable under the circumstances and, therefore, were not further evaluated. As prescribed by Council on Environmental Quality regulations, the EA evaluates the no action alternative, which would consist of the Army continuing to provide for the family housing needs of its personnel through use of traditional military construction and maintenance funding through the Congressional authorization and appropriations process.

The EA analyzes the proposed action (the Army's preferred alternative) and a no action alternative. The focus is on evaluation of environmental effects that could occur in the first 10 years of implementation of the CDMP (through 2014). Prediction of potential environmental effects for the years beyond 2014 would be increasingly speculative and, therefore, is not attempted.

ENVIRONMENTAL CONSEQUENCES

The EA evaluates potential effects on land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic substances. For each resource area, the predicted effects from both the proposed action, identified as the Army's preferred alternative, and the no action alternative are briefly described below.

Consequences of the Preferred Alternative

Land Use

***All installations*:** Long-term direct moderate beneficial effects[2] on installation land use would be expected. Improvements to housing that would be made by FESMFH would improve the quality

[2] Throughout the discussions of consequences of the proposed action and no action alternatives, phrases such as "minor beneficial," "negligible adverse," and the like are used. The meanings of these terms are clarified below.
A "direct" effect is one caused by the action and occurring at the same time and place as the action.

of the use of the land. Land use compatibility issues with neighboring land uses are not foreseen nor would the ability of the installation to meet its military mission be adversely affected.

Aesthetics And Visual Resources

***All installations*:** Short-term direct minor adverse effects would be expected from the visual presence of construction equipment during the construction and renovation phase of the RCI program. Long-term moderate beneficial effects would be expected within the housing areas from improvements to roads, construction of new neighborhood centers, the incorporation of parks and green space, and the overall modernization of the housing structures. As a result of the RCI program, the overall aesthetic appeal of the housing areas would be expected to improve.

***Fort Eustis*:** Long-term direct moderate beneficial effects would be expected from the creation of new open spaces, modernized structures, and improved neighborhood layouts, which would improve the overall aesthetic appeal of the housing areas.

***Fort Story*:** Long-term direct minor adverse effects would be expected from the development of some of the additional housing where it would permanently alter views of the ocean.

***Fort Story and Fort Monroe*:** Long-term minor beneficial effects would be expected from FESMFH's plan to complement the natural surroundings by constructing housing that provides views of the Chesapeake Bay and that reflects the architectural environment of the existing historic homes on Fort Monroe.

Air Quality

***All installations*:** Short-term direct negligible adverse effects would be expected. Construction equipment would emit minor amounts of air pollutants, but not to a level that would cause degradation of the air quality in the region.

Noise

***All installations*:** Short-term direct minor adverse effects would be expected because of construction activities, but they would be confined to the normal work week and work hours.

Geology And Soils

***All installations*:** Short-term direct minor adverse effects would be expected on soils. Construction activities would be expected to result in some soil erosion, and the erosion would be reduced to the extent possible by the use of BMPs. No effects would be expected on either geology/topography, prime farmland soils, or seismicity.

Water Resources

***All installations*:** Short-term indirect negligible adverse effects on surface waters would be expected from the generation of sediment-laden runoff and potentially from minor spills or drippage of petroleum compounds. These effects would be reduced by the use of BMPs to control

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An "indirect" effect is one caused by the action but which occurs later in time or farther removed in distance, but which is still reasonably foreseeable.
"Negligible," "minor," and "moderate" all refer to the intensity of effect. Unless otherwise stated, their use does not indicate a significant effect. Specifically, "negligible" indicates that the effect is at the lowest levels of detection. "Minor" indicates that the effect is slight, but detectable. "Moderate" indicates that the effect is readily apparent.

runoff and filter or otherwise reduce its pollutant load before discharge to surface waters. No effects to groundwater quality or floodplains would be expected.

***Fort Story*:** Long-term direct negligible adverse and beneficial effects would be expected. Impervious surface would increase slightly under the proposed action, and storm water volume could increase as a result. Infiltration into the generally sandy soils of the installation should mostly prevent overland flow and ponding. The frequency of storm-driven flooding in houses would be expected to decrease after those units currently subject to flooding are removed.

***Fort Monroe*:** Long-term beneficial effects could arise from a reduced extent of impervious surface area. Some portions of the development footprint would be converted from developed land to open space, permitting greater infiltration of rain water into the ground.

Biological Resources

***All installations*:** Short- and long-term direct minor adverse effects on common wildlife species would result from their displacement when areas are cleared for new homes. Small areas would be affected, and no population-level effects would be expected. The habitat provided by new housing would be very similar to that currently available to cantonment-area species. No effects would be expected on aquatic species.

***Fort Eustis*:** Short- and long-term direct minor adverse effects on vegetation would be expected. Some vegetation would be cleared for construction, and new vegetative cover would be expected to become established in the new communities. No effects would be expected to sensitive species. Short-term indirect negligible adverse effects on wetlands would be expected because of minor storm water runoff from construction areas to the Warwick River and its tributaries.

***Fort Story*:** Short- and long-term direct minor adverse effects on vegetation would be expected. Some vegetation would be cleared for construction, and new vegetative cover would be expected to become established in the new communities. No effects to sensitive species or wetlands would be expected.

Cultural Resources

***All installations*:** Long-term direct minor adverse effects on cultural resources could occur if construction was to disturb archaeological sites that are eligible or potentially eligible for listing on the NRHP.

***Fort Story*:** Long-term direct and indirect minor adverse effects on cultural resources could occur. Renovation, alteration, or demolition of some existing housing structures is planned. New construction would be within the Historic District, and new construction could be within the viewshed of contributing structures.

***Fort Monroe*:** Wherry housing would be demolished and new construction is planned in areas adjacent to the historic portions of the facility. The new housing could adversely affect the historic "feel" of the contributing structures in the NHL District and could be out of character with the District, although FESMFH plans to build housing units in keeping with the historic character of the installation. FESMFH would maintain the non-Wherry historic housing units in accordance with the Fort Monroe Integrated Cultural Resources Management Plan, which incorporates federal and state historic preservation standards.

Socioeconomics

***All installations*:** Short-term direct and indirect minor beneficial effects on economic development would be expected from the expenditures and employment associated with construction of the family housing on Forts Eustis, Story, and Monroe. The economic benefits would last only for the duration of the construction, or approximately 6.5 years. Long-term direct moderate beneficial effects on housing would be anticipated because of the elimination of the deficit in 3- and 4-bedroom units on the installations and the provision of quality, affordable housing to Army personnel assigned to them. The local housing market would not be adversely affected by implementation of the RCI program. Long-term direct major beneficial effects on the quality of life would be expected from the improvement of on-post family housing. No adverse effects on schools would be expected.

Short-term indirect minor adverse and long-term direct minor beneficial effects on the protection of children would be expected. Construction sites can be enticing to children, and construction activity could be an increased safety risk. Beneficial effects on children would be expected because of reduced exposure to hazardous materials, such as ACM and LBP, that would be abated or removed during renovation or demolition activities.

No effects on population, law enforcement, fire protection services, or environmental justice would be expected. No effects would be expected.

Transportation

***All installations*:** Short-term direct minor adverse and long-term direct minor beneficial effects on traffic would be expected. Minor wear and tear on installation roads could be caused by construction vehicles, and road improvements planned for the housing areas would improve conditions and traffic circulation. Some traffic would be alleviated by the addition of neighborhood centers and other amenities, which would be expected to decrease the number of short trips taken by car. No effects on public transportation would be expected.

Utilities

***All installations*:** Short-term direct negligible adverse effects on potable water supply and electricity would be expected. Construction activities, equipment, and personnel would be expected to increase potable water and electricity use temporarily during the construction phase of the proposed action. The solid waste generated by construction and demolition would be substantial, but would not be expected to create a landfill capacity problem, especially if an aggressive recycling effort was conducted during construction. No effects on other utilities would be expected. Long-term direct moderate beneficial effects on utilities in general would be expected. Renovation of existing housing would improve utility service at the units, and new construction would have modern utility systems. No substantial additional demand on utility systems would be expected.

Hazardous And Toxic Substances

***All installations*:** Long-term direct negligible beneficial effects would be expected from the removal of hazardous materials used in the construction of the existing housing on the installation and their replacement with nonhazardous ones.

***Fort Monroe*:** Short-term direct minor adverse effects would be expected. The risk of exposure to UXO increases with construction activities where subsurface digging is involved.

Cumulative Effects

***All installations*:** A sizeable quantity of solid waste would be generated by the proposed actions at the three installations, but it would not be expected to pose a problem for area landfills. Recycling of materials that can be recycled would reduce the impact of the proposed action on landfill capacity.

***Fort Eustis*:** Construction of a second access road and new elementary school during the timeframe in which the new housing is being constructed would add to noise, dust, vehicle emission, and traffic problems, but after its construction it would be expected to alleviate some traffic congestion on the installation, potentially including that caused by construction vehicles.

The new elementary school planned to be constructed on Fort Eustis would reduce the number of children transported off-post to attend school, which also could help alleviate some rush-hour traffic and improve the quality of life for the families affected.

A security fence is planned to be constructed at Fort Eustis for force protection purposes. Could add to the visual quality of the renovated family housing areas and would provide added security and safety for residents.

Privatization of the utilities at the installations could create beneficial and/or adverse cumulative effects for soldiers and their families.

Consequences of the No Action Alternative

Only those resources that would be affected by the no action alternative are discussed below.

Aesthetics And Visual Resources

***All installations*:** Long-term indirect minor adverse effects would be expected. With the Army continuing to be responsible for maintenance and renovation of housing, housing would be expected to continue to deteriorate, degrading the visual and aesthetic resources of the installation.

Socioeconomics

***All installations*:** Long-term indirect adverse effects on housing and the quality of life would be expected because family housing on the installations would perpetuate deficiencies in quality of life for many soldiers and their dependents and the inventory of family housing would continue to decrease over time, forcing military employees and their families to find housing off-post. Long-term indirect minor adverse effects on the protection of children would be expected from the continued presence of hazardous materials in family housing.

No effects on economic development and demographics or environmental justice would be expected.

Hazardous And Toxic Substances

***All installations*:** Long-term indirect minor adverse effects would be expected from the continued presence of hazardous materials such as LBP and ACM.

Table ES-1 summarizes the predicted effects for each resource area from both the proposed action, identified as the Army's preferred alternative, and the no action alternative.

Table ES-1. Summary of Potential Environmental and Socioeconomic Consequences.

	Environmental and Socioeconomic Consequences	
Resource[1]	**Proposed Action**	**No Action Alternative**
Land Use	Long-term beneficial	No effects
Aesthetics and Visual Resources		
Fort Eustis	Short-term adverse Long-term beneficial	Long-term adverse
Fort Story	Short- and long-term adverse Long-term beneficial	Long-term adverse
Fort Monroe	Short-term adverse Long-term beneficial	Long-term adverse
Air Quality	Short-term adverse	No effects
Noise	Short-term adverse	No effects
Geology and Soils	Short-term adverse effects on soils	No effects
Water Resources		
Fort Eustis	Short- and long-term adverse effects on surface waters	No effects
Fort Story	Short-term adverse effects on surface waters Long-term adverse effects on storm water flow Long-term beneficial effects on flooding	No effects
Fort Monroe	Short-term adverse effects on surface waters Long-term beneficial effects on storm water flow	No effects
Biological Resources		
Fort Eustis	Short- and long-term adverse effects on common wildlife species and vegetation Short-term adverse effects on wetlands	No effects
Fort Story	Short- and long-term adverse effects on common wildlife species and vegetation	No effects
Fort Monroe	Short- and long-term adverse effects on common wildlife species	No effects
Cultural Resources	Long-term adverse[2]	No effects
Socioeconomics	Short-term beneficial effects on economic development Long-term beneficial effects on housing and quality of life Short-term adverse and long-term beneficial effects on the protection of children Cumulative: Long-term beneficial	Long-term adverse effects on housing and the protection of children
Transportation	Short-term adverse and long-term beneficial effects on traffic Cumulative: Short-term adverse and long-term beneficial	No effects
Utilities	Short-term adverse effects on public water supply and electricity Long-term beneficial effects on all utilities Cumulative: Long-term adverse	No effects
Hazardous and Toxic Substances		
All installations	Long-term beneficial	Long-term adverse[3]
Fort Monroe	Short-term adverse	Long-term adverse[3]

[1] Effects apply to all three installations unless otherwise noted.

[2] Long-term adverse effects could occur if subsurface cultural materials are located in proposed construction areas. Housing structures for the NRHP also could be affected.

[3] Long-term adverse effects could occur. It is assumed that Forts Eustis, Story, and Monroe would continue to abate ACM and LBP in accordance with all applicable laws, but abatement would occur over a longer period of time than the period of the proposed action.

MITIGATION

Mitigation actions for the proposed Army RCI project will be incorporated into the CDMP. Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. Table ES-2 summarizes the proposed mitigation measures to be taken for each of the affected resources.

CONCLUSIONS

Based on the analysis performed in this EA, implementation of the preferred alternative would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment. Preparation of an Environmental Impact Statement is not required. Issuance of a Finding of No Significant Impact would be appropriate.

Table ES-2. Summary of Mitigation Measures.

Aesthetics and Visual Resources
• Revegetate housing areas with native vegetation. • Place new utility lines underground.
Air Quality
• Spray water on work sites to reduce dust. • Schedule construction traffic during non-peak traffic hours.
Noise
• Use setbacks, berms, and plantings of natural vegetation to attenuate noise. • Limit construction activities to daylight hours.
Geology and Soils
• Use appropriate and required BMPs (such as silt fences, strawbale dikes, and water bars) to reduce soil erosion and sedimentation.
Water Resources
• Incorporate storm water management structures in housing construction management, housing structures, and roads to prevent flooding and erosion; use low-impact development techniques to reduce runoff after construction and to maximize infiltration. • Revegetate bare soil following construction activities.
Biological Resources
Vegetation: • Limit disturbed areas to the housing footprint and a minimal amount of adjacent areas. • Plant native vegetation near homes, in parks, and in open spaces. Wildlife: • Preserve existing native vegetation to act as buffers and wildlife corridors. • Plant native vegetation to provide food and shelter for wildlife. Sensitive Areas: • Minimize disturbance to sensitive areas and maintain buffers around them and between them and housing areas.
Cultural Resources
• Maintain all historic units in accordance with the provisions of installation ICRMPs, which incorporate federal and state historic preservation standards. • Avoid all recognized areas of archaeological interest. • Include clauses in construction contracts with provisions suspending work until a mitigation determination is made in the event of archaeological artifacts being unearthed.
Socioeconomics and Protection of Children
• Secure construction vehicles and equipment when not in use. • Place barriers and "No Trespassing" signs around construction sites where practicable. • Avoid the use of building products containing hazardous materials.
Traffic and Transportation
• Limit construction vehicle entry and exit during peak traffic hours.
Utilities
• No mitigation is necessary. • Mitigation for storm water runoff is discussed above under Water Resources.
Hazardous and Toxic Substances
• Evaluate, store, and dispose of hazardous materials used or removed during demolition, construction, and renovation in accordance with applicable regulations and a Spill Contingency and Hazardous Waste Management Plan.

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FIGURES

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SECTION 1.0
PURPOSE, NEED, AND SCOPE

1.1 BACKGROUND

This environmental assessment (EA) covers the Army Residential Communities Initiative (RCI) actions to be taken at three installations in southeastern Virginia— Fort Eustis, Fort Story, and Fort Monroe. Family housing redevelopment on the three installations would be conducted by one developer under a single contract. The development activities and their environmental and socioeconomic consequences, therefore, are analyzed in one EA as a single federal action.

The US Army operates and maintains approximately 90,000 family housing units at its installations throughout the United States. More than 75 percent of the units do not meet current Army housing standards. Despite this, at most installations demand for adequate housing on base exceeds supply. The lack of adequate on-base housing forces many soldiers and their families to live in housing in need of repair or renovation or to live off-base where the cost and quality of housing vary considerably. Often, the costs to soldiers and their families to live off-base are 15 to 20 percent greater than the costs to live on-base. The Army estimates that as much as $6 billion would be needed to bring its housing up to current standards and to address the deficit of housing.

In recognition of these problems, Congress enacted Section 2801 of the 1996 Defense Authorization Act (Public Law 104-106, codified at Title 10 of the *United States Code* [U.S.C.], Sections 2871–2885). Also known as the Military Housing Privatization Initiative (MHPI), the provisions of this law create alternative authorities for improving and constructing military family housing. The legislative intent of Congress in enacting these additional authorities is to enable the military to obtain private sector funding to satisfy family housing requirements. By leveraging scarce public funding, the Army can obtain private sector funds for construction, maintenance, management, renovation, replacement, rehabilitation, and development of Army family housing and ancillary supporting facilities.[1] The Army's implementation of the MHPI authorities is known as the Army RCI.

Fort Eustis is northwest of Norfolk, Virginia, in the coastal region of southeastern Virginia on the peninsula between the James and York Rivers. It is bounded on the north by James City County and on the east and south by the city of Newport News (Figure 1-1). The installation encompasses 8,228 acres (13 square miles) and is characterized by low and flat topography, rising from approximately 5 feet above mean sea level (MSL) to approximately 30 feet above MSL in the cantonment area. The US Army Transportation Center at Fort Eustis, a major subordinate command of the US Army Training and Doctrine Command (TRADOC), provides training in rail, marine, and amphibious operations and other modes of transportation. The installation is the home of the 7th Transportation Group and the 8th Transportation Brigade. Fort Eustis has approximately 7,487 active duty military personnel and 3,013 civilian personnel. There are 952 family housing units on the installation (Randy Brown, personal communication, 2003).

[1] According to 10 U.S.C.§ 2871, the term *ancillary supporting facilities* means "facilities related to military housing units, including child care centers, day care centers, tot lots, community centers, housing offices, dining facilities, unit offices, and other similar facilities for the support of military housing."

Location Map

Fort Eustis, Fort Monroe, and Fort Story, Virginia

Figure 1-1

Fort Story is approximately 35 miles southeast of Fort Eustis on Cape Henry, Virginia, where the Chesapeake Bay meets the Atlantic Ocean. The city of Virginia Beach, Virginia, and Seashore State Park border Fort Story on the landward side (Figure 1-1). The installation encompasses 1,452 acres (2.27 square miles) and is characterized by flat to rolling topography, with elevations between MSL and 85 feet above MSL and lines of dunes that rise between 20 and 85 feet high. Fort Story is the Army's only training facility for logistics-over-the-shore operations to train troops on amphibious equipment and to practice transferring cargo from ship to shore. It is home to the 11th Transportation Battalion of the 7th Transportation Group, which is headquartered at Fort Eustis, Virginia. Fort Story has approximately 635 active duty military personnel and 174 civilian personnel. There are 163 family housing units on the installation (Randy Brown, personal communication, 2003).

Fort Monroe is at the southern tip of the Virginia Peninsula, which is bounded by the James River and the York River, in Hampton, Virginia (Figure 1-1). The installation encompasses 568 acres (0.89 square mile, 108 acres [0.17 square mile] of which are submerged). It is generally flat with elevations from MSL to 14 feet above MSL. The installation itself is a peninsula that connects to the Virginia Peninsula at Buckroe Beach to the north. Fort Monroe is the home of the headquarters of TRADOC as well as the Northeast Regional Office of the Installation Management Agency. It has approximately 2,348 active duty military personnel and 1,295 civilian personnel. There are 389 family housing units on the installation, 183 of which are non-Wherry historic.

1.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The age and condition of family housing units at Forts Eustis, Story, and Monroe vary. Most of the family housing at Fort Eustis was built between 1958 and 1962; older units at Fort Eustis date back to 1941. The Capehart housing at Fort Story was built in 1958, and the stand-alone units were built between 1917 and 1958. Fort Monroe's Wherry housing was constructed in 1952, and its non-Wherry historic housing was constructed between 1819 and 1943. Approximately 80 percent of the housing units at Fort Eustis were constructed before 1960, and all of the housing units at Fort Story and Fort Monroe were built before 1960.

Housing units constructed before 1960 are substantially below acceptable standards.[2] These older units also lack contemporary amenities such as family rooms, laundry/utility space, adequate exterior storage, and auxiliary eating areas ("eat-in" kitchens, or "breakfast nooks"). Most of the housing units have potential health and safety concerns associated with the presence of lead-based paint, asbestos-containing material, and pesticides applied for pest control. Many of the communities require major improvements in infrastructure such as utilities, roads, and landscaping. Renovations over the years have been limited because of shortfalls in funding, resulting in increased maintenance requirements.

Fort Eustis has a $10.7 million backlog of maintenance and repair, which usually increases each year because of the age of the housing and funding shortfalls. It is anticipated that all units would require renovation within the next 10 years. Without adequate funding to address the renovation backlog, housing units could decline to a condition where they would be unsuitable for occupancy. There is a shortage of 4-bedroom housing units. The combined waiting list for family housing for Forts Eustis and Story now includes 185 families, and the average waiting time at Fort Eustis is 4 months for 2-bedroom units, 1 to 5 months for 3-bedroom units, and 48 months for 4-bedroom units (US Army, 2003). The vacancy rate

[2] U.S. Army Housing Adequacy Standards focus on the size, configuration, safety, condition, services, and amenities that tend to make housing compatible with contemporary standards of livability (US Army, 1999).

for suitable rental housing near Fort Eustis is about 3 percent (USDOC-Census, 2001). Rental rates for adequate housing near the installation exceed most soldiers' Basic Allowance for Housing (BAH).

Fort Story does not track maintenance and repair backlog. Approximately 164 units would require renovation within the next 10 years. Without adequate funding to address the renovation backlog, housing units could decline to a condition where they could be unsuitable for occupancy. There is a shortage of 4-bedroom housing units. The combined waiting list for family housing for Forts Story and Eustis now includes 185 families, and the average waiting time at Fort Story is 12 to 16 months (US Army, 2001). The vacancy rate for suitable rental housing near Fort Story is about 1.4 percent (USDOC-Census, 2001). Rental rates for adequate housing near the installation exceed most soldiers' BAH.

Fort Monroe has a $3 million backlog of maintenance and repair for its Wherry historic housing and an additional $18.8 million needed for revitalizations to its non-Wherry historic housing (Smith, personal communication, 2002). Approximately 100 Wherry units need major repairs, all non-Wherry historic housing will need some repair within the next 10 years, and 54 of the non-Wherry historic units will need major repair and renovation within the next 10 years. There is a shortage of 3- and 4-bedroom housing units in Fort Monroe's housing. The waiting list for Wherry housing now includes 69 families, and the average waiting time is 3 months for 2-bedroom units, 13 to 15 months for 3-bedroom units, and 13 to 22 months for 4-bedroom units (US Army, 2002). The vacancy rate for suitable rental housing near Fort Monroe is about 2.3 percent (USDOC-Census, 2001). Rental rates for adequate housing near the installation exceed most soldiers' BAH.

Consistent with the MHPI authorities, Forts Eustis, Story, and Monroe propose to transfer responsibility for providing housing and ancillary supporting facilities to Forts Eustis, Story, and Monroe Family Housing, LLC (FESMFH), a limited liability company composed of the Army and J.A. Jones Community Development, Inc. The installations would convey all military housing units and selected ancillary support facilities and grant FESMFH a 50-year ground lease for the areas on which the housing and facilities are located. The installations would also lease additional areas for FESMFH's use to construct new housing and to operate ancillary supporting facilities.

The purpose of the proposed action is to improve military family housing at Forts Eustis, Story, and Monroe. The proposed action is needed at the installations to provide affordable, quality housing and ancillary supporting facilities to soldiers and their families. The proposed action would be implemented by improving existing housing and by eliminating the present deficit in the number of available family housing units at the installations. Forts Eustis, Story, and Monroe would expect FESMFH to achieve the following goals (US Army, 1999):

- Ensure that eligible soldiers and their families have access to quality, attractive, and affordable housing by upgrading inadequate existing family housing and by building new housing to address the family housing deficit at Forts Eustis, Story, and Monroe.
- Improve the appearance and functions of the residential community, while preserving historic properties, protecting cultural resources, and meeting environmental stewardship responsibilities.
- Provide ancillary supporting facilities that enhance the residential communities at Forts Eustis, Story, and Monroe.
- Maintain positive relations with the communities that surround the installations.
- Provide for the effective management and operation of existing, renovated, and new housing units and ancillary supporting facilities on a long-term basis.

1.3 SCOPE OF ANALYSIS

This EA has been developed in accordance with the National Environmental Policy Act of 1969 (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ) (Title 40 of the *Code of Federal Regulations* [CFR] Parts 1500–1508) and the Army (32 CFR Part 651). Its purpose is to inform decision-makers and the public of the likely environmental consequences of the proposed action and alternatives.

This EA identifies, documents, and evaluates the potential environmental effects of implementing the Army RCI at Forts Eustis, Story, and Monroe. Section 2.0 describes the proposed action. Section 3.0 sets forth alternatives to the proposed action, including a no action alternative, and explains why certain alternatives are not evaluated in detail. Section 4.0 describes existing environmental conditions at the installations that could be affected by the proposed action. It also identifies potential environmental effects that could occur upon implementation of each of the alternatives evaluated. Section 5.0 summarizes the findings and conclusions regarding the potential environmental effects of the proposed action.

This EA evaluates the environmental and socioeconomic effects that would be expected to occur upon implementation of the proposed action as reflected in the Community Development and Management Plan (CDMP), the agreement ultimately negotiated by and between Forts Eustis, Story, and Monroe and FESMFH. Because of cost, financial, environmental, or other reasons, certain choices, such as alternative housing sites, housing densities, housing formats (high-rise vs. low-rise), types of ancillary supporting facilities, and timing of specific FESMFH actions, were eliminated from further consideration during CDMP negotiations.

An interdisciplinary team of environmental scientists, biologists, ecologists, geologists, planners, economists, engineers, archaeologists, historians, and military technicians has reviewed the proposed action in light of existing conditions and identified relevant beneficial and adverse effects associated with the action. The EA focuses on effects likely to occur within the project area, which generally consists of the present on-post family housing areas on each installation and new areas to be used for family housing neighborhoods. The document analyzes direct effects (those caused by the proposed action and occurring at the same time and place) and indirect effects (those caused by the proposed action and occurring later in time or farther removed in distance but still reasonably foreseeable). The potential for cumulative effects is also addressed, and mitigation measures are identified where appropriate.

This EA focuses on evaluation of environmental effects that are reasonably foreseeable, within approximately the first 10 years of the implementation of the CDMP (through 2014). This is the period during which FESMFH would accomplish demolition, renovation, and new construction of family housing, as well as operation and maintenance of all housing units and ancillary supporting facilities. Potential environmental effects beyond 2014 are not analyzed in this EA.

This EA identifies matters related to environmental considerations and supports decision making on proposed RCI actions. Consistent with Army and other federal regulations and policies, the Army must undertake numerous other actions to achieve its objectives. Many of those other actions result in the availability of information for use in the EA. Figure 1-2 shows the time line for the EA process in relation to other actions that accompany the RCI effort.

1.4 PUBLIC INVOLVEMENT

Forts Eustis, Story, and Monroe invite public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. All agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision-making process.

The Army's NEPA guidance provides for public participation in the NEPA process.

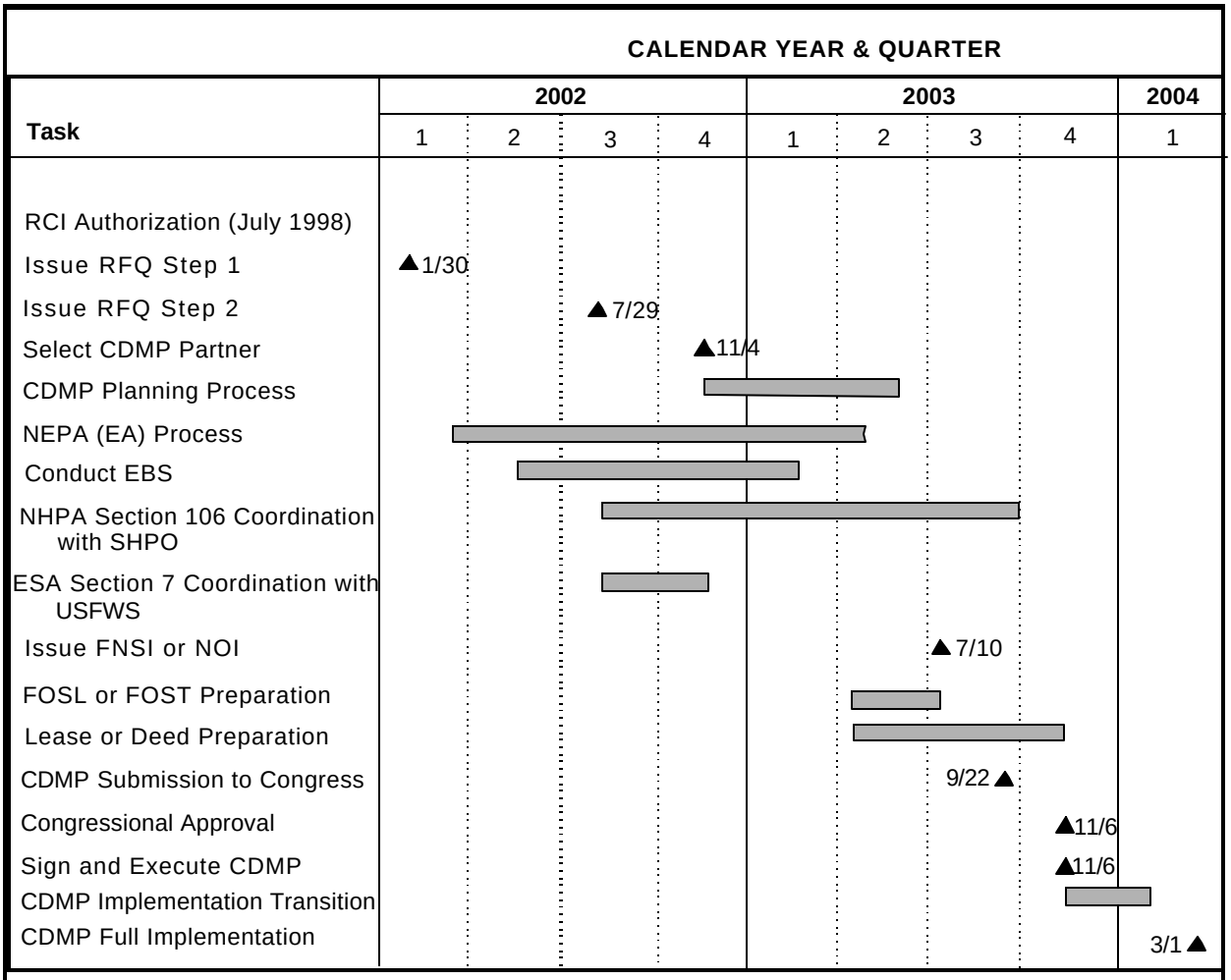
When preparing environmental analyses, the Army conducts "scoping" to solicit public and agency comment on issues or concerns that should be addressed. Scoping is designed to involve the public early in the NEPA process. Comments may be solicited through newspaper advertisements and agency and public scoping meetings.

Although informal comments are welcome at any time throughout the process, the scoping period at the outset of the NEPA process provides formal opportunities for public participation in development of the EA. The Army has provided wide notice of its proposal to privatize the family housing at Fort Eustis, Fort Story, and Fort Monroe. On March 18, 2003, the Army conducted a public ceremony recognizing selection of J.A. Jones Community Development, Inc. as its Development Partner. Present at the ceremony were Major General Dail, Chief of Transportation, Commander, Fort Eustis; General Premo, Fort Monroe; Mr. Armbruster, Deputy Assistant Secretary of the Army for Privatization; Congressman Robert C. "Bobby" Scott; the Vice-Mayor of Newport News; a member of the Newport News City Council; and a member of the Poquoson City Council. Approximately 125 members of the local community attended the ceremony, and local newspaper and television media covered it.

Based on this EA, the Army has determined that an Environmental Impact Statement is not required and therefore has issued a Finding of No Significant Impact (FNSI) for public review. In accordance with Army NEPA guidance, Forts Eustis, Story, and Monroe will observe a 30-day period during which the public may submit comments on the proposed action, the EA, and the FNSI. At the end of the 30-day period, any comments received will be considered before implementing the proposed action. A public notice on the availability of the EA and FNSI is being published in the *Virginian Pilot* and the *Daily Press*, and the EA and FNSI will be made available on Fort Eustis's and Fort Monroe's Web sites at http://www.eustis.army.mil and http://fort.monroe.army.mil/monroe. The 30-day review period begins on the day the public notice is published.

1.5 FRAMEWORK FOR ANALYSIS

A decision on whether to proceed with the proposed action rests on numerous factors, such as the mission requirements of each installation, schedules, availability of funding, and environmental considerations. The installations are guided by several relevant statutes (and implementing regulations) and Executive Orders that establish standards and provide guidance on environmental and natural resources management and planning. These include, but are not limited to, the Clean Air Act, Clean Water Act, Noise Control Act, Endangered Species Act, Farmland Protection Policy Act, National Historic Preservation Act, Archaeological Resources Protection Act, Resource Conservation and



CDMP=Community Development and Management Plan
EA=Environmental Assessment
EBS=Environmental Baseline Survey
ESA=Endangered Species Act
FNSI=Finding of No Significant Impact
FOSL=Finding of Suitability to Lease
FOST=Finding of Suitability to Transfer
NEPA=National Environmental Policy Act
NHPA=National Historic Preservation Act
NOI=Notice of Intent
RFQ=Request for Qualifications
ROA=Report of Availability
SHPO=State Historic Preservation Officer
USFWS=U.S. Fish and Wildlife Service

RCI Project Schedule

Fort Eustis, Fort Story, Fort Monroe Virginia

Figure 1-2

Recovery Act, Toxic Substances Control Act, Coastal Zone Management Act, Chesapeake Bay Restoration Act, Executive Order (EO) 11988 (*Floodplain Management*), EO 11990 (*Protection of Wetlands*), EO 12088 (*Federal Compliance with Pollution Control Standards*), EO 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*), EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*), and EO 13175 (*Consultation and Coordination with Indian Tribal Governments*). Where useful to better understanding, key provisions of these statutes and EOs are described in more detail in the text of the EA.

SECTION 2.0
PROPOSED ACTION

This section presents information on the Army's RCI and Fort Eustis's, Fort Story's, and Fort Monroe's proposed action under that initiative. Section 2.1 describes the Army RCI generally and the legislative authorities in detail, while Section 2.2 describes more specifically how the CDMP would be implemented at the installations. Implementation of the proposed action as described in Section 2.2 is the preferred privatization alternative of Fort Eustis, Fort Story, and Fort Monroe. Other alternatives considered are described in Section 3.0.

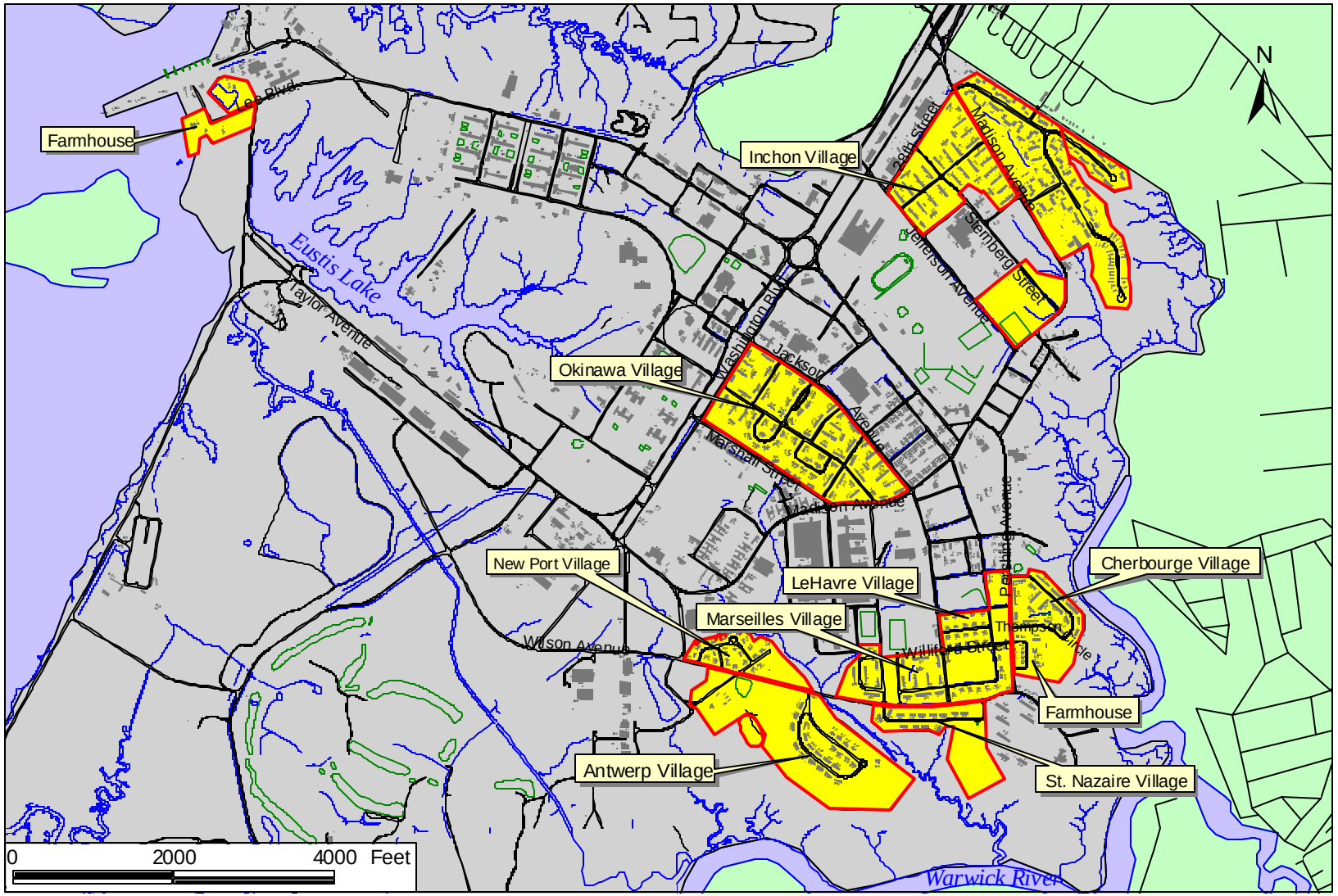
Consistent with authorities contained in the MHPI, Forts Eustis, Story, and Monroe propose to transfer responsibility for providing housing and ancillary supporting facilities to FESMFH, the private Development Partner. The installations worked with FESMFH to develop a CDMP to implement the MHPI at Forts Eustis, Story, and Monroe.

The CDMP was developed to meet the installations' needs for attaining affordable, quality housing and other facilities at Forts Eustis, Story, and Monroe. An excerpt from the CDMP is provided in Appendix A. See also Section 2.2. In accordance with the proposed CDMP, the installations propose to do the following:

- Convey 952 existing dwelling units in 8 housing areas (called villages) and 4 farmhouses (and 6 adjacent guest cottages) on Fort Eustis to FESMFH and provide FESMFH with a 50-year land lease of approximately 222 acres (Figure 2-1).
- Convey 163 existing dwelling units on Fort Story, including 148 in 2 housing areas and 15 stand-alone units, on Fort Story to FESMFH and provide FESMFH with a 50-year land lease of approximately 23 acres (Figure 2-2).
- Convey 206 existing Wherry housing units and 183 non-Wherry historic housing units on Fort Monroe to FESMFH and provide FESMFH with a 50-year land lease of approximately 71 acres (Figure 2-3).
- Provide a 50-year land lease of approximately 141 acres of property on the installations to FESMFH for the construction of new family housing units and ancillary supporting facilities.
- Convey existing housing maintenance facilities and lease the underlying land.
- Total acreage to be leased at the three installations would be approximately 457 acres.

Implementation of the proposed CDMP would include the following actions:

- Decreasing the on-post housing inventory at Fort Eustis by 78 units to provide an end-state inventory of 874 units, increasing the inventory at Fort Story by 87 units to provide an end-state inventory of 250 units, and decreasing the inventory at Fort Monroe by 117 units to provide an end-state inventory of 272 units.
- Revising the mix of family housing to better meet the actual requirements of soldiers and their families: 0 two-bedroom units, 513 three-bedroom units, 359 four-bedroom units, and 2 five-bedroom units at Fort Eustis; 0 two-bedroom units, 169 three-bedroom units, 80 four-bedroom units, and 0 five-bedroom units at Fort Story; and 43 two-bedroom units, 121 three-bedroom units, 93 four-bedroom units, and 14 five-bedroom units at Fort Monroe.



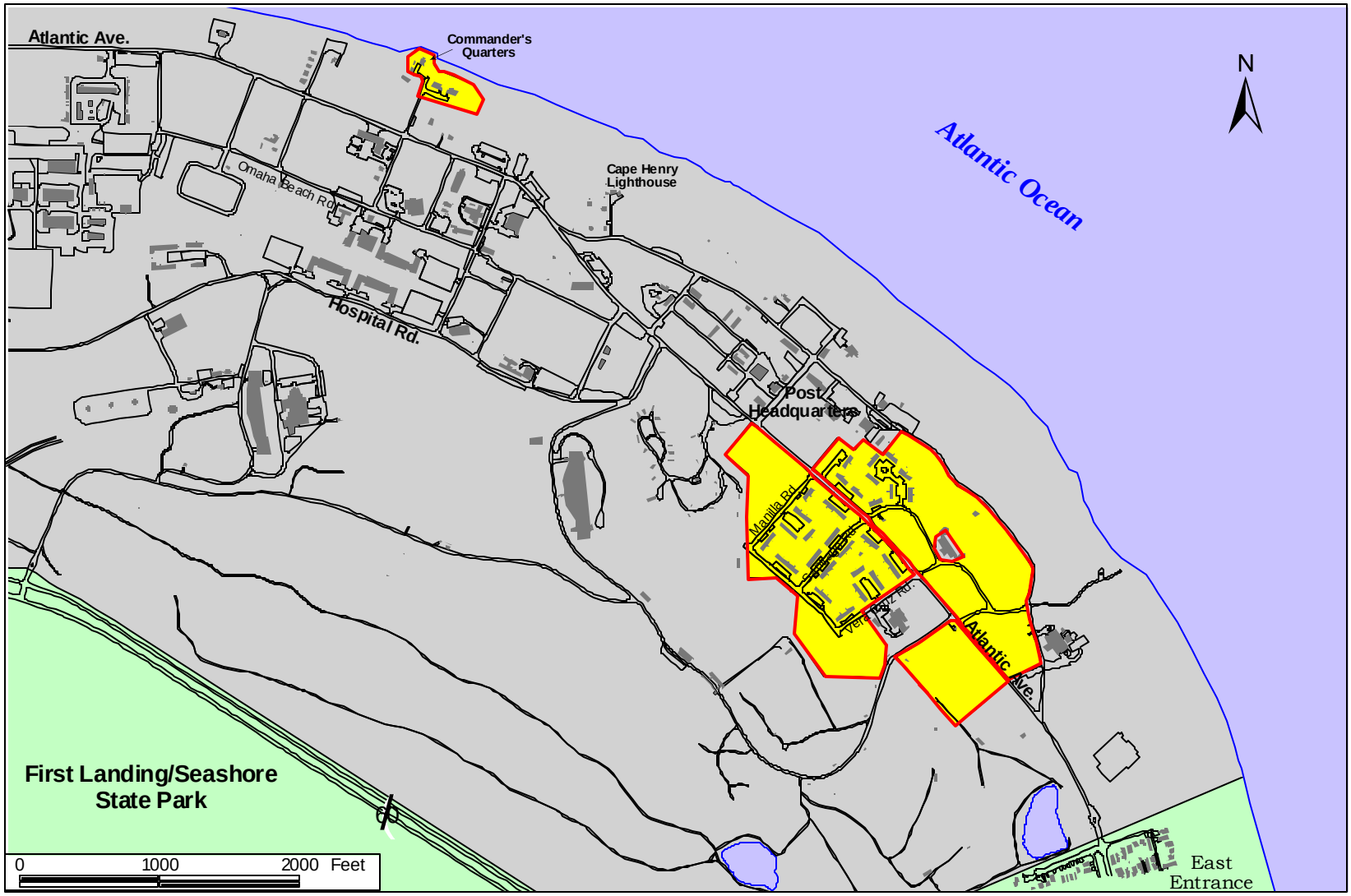
Fort Eustis RCI Footprint

LEGEND

- Building
- Installation Boundary
- Recreation
- Road
- Stream/Shoreline
- Proposed RCI Footprint

Source: USATCFE-CB, 1998.

Figure 2-1



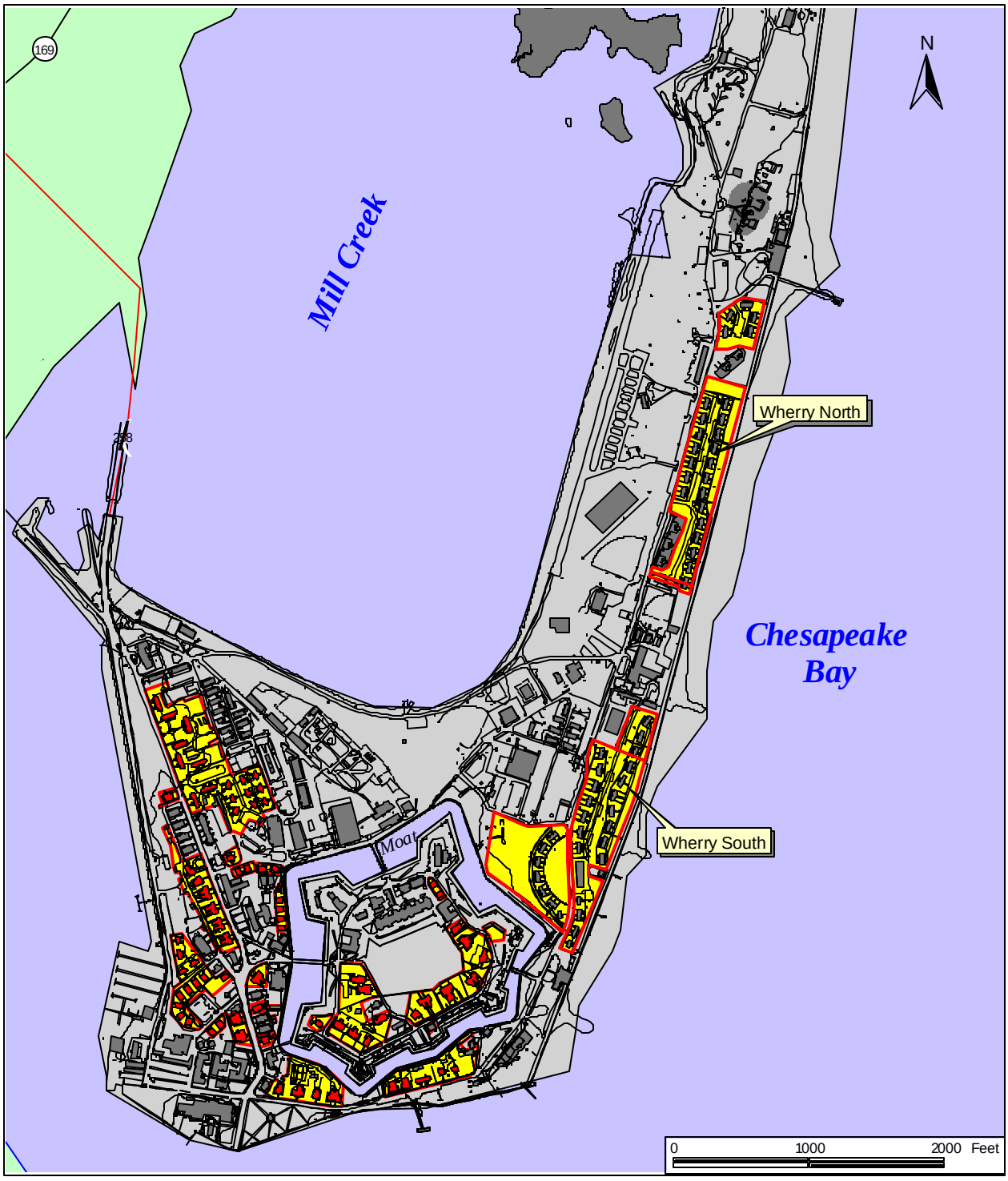
LEGEND

- Installation Boundary
- Building
- Road
- Shoreline/Water
- Proposed RCI Footprint

Source: USATCFE-CB, 1998.

Fort Story RCI Footprint

Figure 2-2



LEGEND

- Installation Boundary
- Road
- Water
- Proposed RCI Footprint
- Non-Wherry Historic Housing

Source: Ft. Monroe, 2002.

Fort Monroe RCI Footprint

Figure 2-3

- Eliminating the housing deficit in 3- and 4-bedroom units at Forts Eustis and Story and 3-bedroom units at Fort Monroe; renovating and improving retained units; and providing landscaping improvements, parks, and playgrounds. FESMFH would construct 1,212 new units, demolish 1,317 units, renovate 1 unit (at Fort Story), and complete revitalization of historic housing units at Fort Monroe. Development would begin by working in the undeveloped areas of Inchon Village on Fort Eustis in February 2004, the Capehart Village–400 Area on Fort Story in February 2004, and the southernmost Wherry housing area on Fort Monroe in August 2004. Implementation also would require that FESMFH operate and maintain all family housing for a period of 50 years, as well as construct, operate, and maintain ancillary supporting facilities.

The development plan would be implemented over a 6.5-year period beginning in February 2004. Prior to demolition or rehabilitation of existing housing units, 349 new housing units would be constructed at Forts Eustis and Monroe to provide a pool of housing to prevent a housing shortage during construction and rehabilitation. Some families would have to move as a result of construction activities, but families would not have to move off-post. Any required move would be at the federal government's expense (US Army, 1999). After completion of the 6.5-year program of demolition, construction, and rehabilitation, total housing units would be decreased by 108 units on the three installations, bringing the total number of family housing units on Fort Eustis to 874, on Fort Story to 250, and on Fort Monroe to 272.

2.1 THE ARMY RESIDENTIAL COMMUNITIES INITIATIVE

2.1.1 Army RCI Procedures

The MHPI grants the Department of Defense (DoD) and the Military Services new authorities for obtaining family housing and ancillary supporting facilities. The essence of the authorities is that they comprehensively allow access to private sector financial and management resources for the improvement, construction, operation, and maintenance of family housing. The Army RCI Program implements the 1996 MHPI. The Army RCI is put into effect at individual installations or, in some instances, at clusters of installations that are in close proximity to each other.

The goal of the Army RCI, simply stated, is to provide affordable, quality housing for soldiers. Implementation of RCI projects, however, is complex. Projects typically involve large numbers of family housing units, and they represent sizable financial stakes for both the private sector developer and the Army. Moreover, project implementation is complex because of the considerable amount of planning, coordination, and oversight that must occur among diverse functions such as engineering, finance, real estate, housing management, law, and others, including the local community.

An RCI project normally addresses an installation's entire inventory of family housing. It might also address required ancillary supporting facilities such as community centers, neighborhood playgrounds, housing offices, and maintenance facilities. An RCI project typically has seven major steps:

2.1.1.1 Decision to participate in the Army RCI

The initial decision whether an installation will participate in the Army RCI rests with the Installation Commander. The Commander's decision can be influenced by many considerations. These extend to matters such as the general condition and availability of family housing for soldiers assigned to the installation, the number of personnel on waiting lists for family housing, the length of time required to obtain family housing, and private sector housing costs near the installation. A Commander's decision to participate in the initiative does not necessarily mean that an RCI project will ultimately occur; rather, it means that planning for the project may proceed.

2.1.1.2 Preliminary determination of requirements

An RCI project has five very visible components: (1) construction of new housing, (2) demolition of existing housing that is obsolete or beyond economical repair or rehabilitation, (3) renovation of housing, (4) provision of ancillary supporting facilities, and (5) operation and maintenance of the housing inventory. Upon an installation's entry into the Army RCI, information to support decisions about requirements for each component must be gathered and verified. Also, suitable locations may have to be identified for siting of new housing or ancillary supporting facilities.

To help reach these preliminary determinations, the Installation Commander initiates several studies and reports. Among these are a Report of Availability (identification of areas that might be leased to a developer/private sector entity, referred to as the "development entity"), an Environmental Baseline Survey (examination of potential contamination at the proposed lease site), and Department of the Army (DA) Form 337 (identification of buildings and improvements that might be conveyed to the development entity as part of the CDMP). The Installation Commander may begin analysis of potential environmental effects at this early stage of the project's planning. Other studies that might also be initiated include a Housing Market Analysis and engineering studies pertaining to utility capacity, soil testing, and boundary delineation. For RCI projects involving housing eligible for listing in the National Register of Historic Places, the Installation Commander should initiate consultation under Section 106 of the National Historic Preservation Act. In all cases, the Installation Commander initiates coordination with local school districts to ensure local officials' ability to plan for and accommodate children's educational needs.

2.1.1.3 Two-step Request for Qualifications

The Army RCI Project Office, located within Headquarters, Department of the Army oversees a two-step Request for Qualifications (RFQ) solicitation. Step 1 of the RFQ identifies potential development partners who are highly qualified with respect to experience, financial capability, organization (corporate level), past performance, and small business utilization (general history). Offerors meeting these requirements comprise an exclusive competitive range. In Step 2 of the RFQ process, an installation's development partner is selected based on its installation-specific preliminary concept, financial return, organizational capabilities, and small business plan.

2.1.1.4 Negotiation of the Community Development and Management Plan

Requirements for new construction, demolition, renovation, and ancillary supporting facilities, as well as future operation and maintenance of family housing, are identified and agreed upon through negotiations between an installation and its development entity. It is during this planning and negotiating process that a variety of options or alternatives for family housing (e.g., housing sites and housing densities) and ancillary supporting facilities (e.g., types of facilities and possible locations) are considered and some dismissed for cost, financial, or other reasons. During this time, NEPA analysis is conducted and coordinated with development of the CDMP. Through this coordination, some potential alternatives are also dismissed because of environmental concerns, while any remaining environmental issues are considered and appropriate mitigation measures identified.

Throughout development of the CDMP the Army evaluates the development entity's approaches to various issues bearing on environmental stewardship. These include matters affecting potential savings with respect to energy conservation, recycling (both during demolition and construction and during later home ownership), natural landscaping and vegetative cover, and similar "smart" building and operational practices. The resulting CDMP contains all the details of the RCI project, including all work to be done, financing arrangements, and schedules.

2.1.1.5 Approval of the CDMP

The Installation Commander submits the negotiated CDMP through command channels to Headquarters, Department of the Army for concurrence. The CDMP is then submitted to DoD for approval, with notification provided to the Congressional committees responsible for MHPI oversight. The approval process authorizes the installation's access to the Family Housing Improvement Fund, a revolving fund established for the MHPI, as well as the installation's use of the MHPI's authorities as set forth in the negotiated CDMP.

2.1.1.6 Ratification of the CDMP

Based on DoD's approval of the use of statutory authorities and the revolving fund, the Installation Commander and the development entity sign the CDMP. Analysis of potential environmental effects in accordance with NEPA is completed prior to approving (signing) the CDMP.

2.1.1.7 Implementation of the CDMP

The CDMP is implemented in accordance with its terms. The approval process authorizes the installation's access to the Family Housing Improvement Fund, a revolving fund established for the MHPI, as well as the installation's use of the MHPI's authorities as set forth in the negotiated CDMP.

2.1.2 Legislative Authorities

The scope of an RCI project is determined primarily by analysis of the condition of existing housing and consideration of additional housing requirements to eliminate the installation's deficit of affordable, quality housing. These factors drive the amount of new construction, demolition, and renovation and the number of ancillary supporting facilities needed at an installation. Negotiation of the CDMP includes selection of the appropriate legislative authorities to support fulfillment of the installation's family housing needs. These provisions give the Army and its Development Partner exceptional flexibility to create successful business arrangements for the benefit of soldiers and their families. The authorities (with their U.S.C. citations) are summarized below.

2.1.2.1 Direct loans

The Army may make direct loans to persons in the private sector to provide funds for the acquisition or construction of housing suitable for use as military family housing. (10 U.S.C. § 2873(a)(1))

2.1.2.2 Loan guarantees

The Army may guarantee a loan to any person in the private sector if the proceeds of the loan are used to acquire or construct housing units suitable for use as military family housing. (10 U.S.C. § 2873(b))

2.1.2.3 Investment in nongovernmental entities

The Army may make investments in nongovernmental entities carrying out projects for the acquisition or construction of housing units suitable for use as military family housing. Such an investment may include a limited partnership interest, a purchase of stock or other equity instruments, a purchase of bonds or other debt instruments, or any combination of such forms of investment. (10 U.S.C. § 2875(a), (b))

2.1.2.4 Differential lease payments

Pursuant to an agreement to lease military family housing, the Army may pay the lessor an amount in addition to the rental payments made by military occupants to encourage the lessor to make the housing available to military members. (10 U.S.C. § 2877)

2.1.2.5 Conveyance or lease of existing property and facilities

The Army may convey or lease property or facilities, including ancillary supporting facilities, to private persons for the purposes of using the proceeds to carry out activities under the Initiative. (10 U.S.C. § 2878)

2.1.2.6 Interim leases

Pending completion of a project under the Initiative, the Army may provide for the interim lease of completed units. The term of the lease may not extend beyond the project's completion date. (10 U.S.C. § 2879)

2.1.2.7 Conformity with similar local housing units

The Army will ensure that the room patterns and floor areas of military family housing units acquired or constructed under the Initiative are generally comparable to the room patterns and floor areas of similar housing units in the locality concerned. Space limitations by pay grade on military family housing units provided in other legislation will not apply to housing acquired under the Initiative. (10 U.S.C. § 2880(a), (b))

2.1.2.8 Ancillary supporting facilities

Any project for the acquisition or construction of military family housing under the Initiative may include the acquisition or construction of ancillary supporting facilities. (10 U.S.C. § 2881)

2.1.2.9 Lease payments through pay allotments

The Army may require soldiers who lease housing acquired or constructed under the Initiative to make lease payments by allotments from their pay. (10 U.S.C. § 2882(c))

2.2 IMPLEMENTATION OF THE PROPOSED ACTION

The proposed CDMP would include a number of actions to be undertaken by FESMFH and Forts Eustis, Story, and Monroe. This section provides an overview of the CDMP. An excerpt of the CDMP is provided in Appendix A. The CDMP proposes to make improvements to new and existing housing that would be based on an "understanding and respect for natural systems." The developer would respect and respond to the existing natural and built environment to minimize impact and capitalize on the value of existing conditions. The planning would reflect environmental principles in the following ways:

- Villages (or neighborhoods) would be designed to respect the existing natural systems of topography, vegetation, and drainage.
- Developed areas would be designed to minimize ground works, aboveground utilities, and drainage problems.
- Existing landscape would be preserved in all possible situations.

- The landscape would be populated largely with native plant materials.
- A water-management system will be designed to handle both the quantity and quality of storm water runoff.
- Dependency on the car would be reduced.
- The open-space network would be used to link larger spaces, corridors, and fragments with a system of pedestrian/bike trails.
- The sense of community would be heightened with improved and linked open spaces, strategic tree locations, trail systems, activity areas, and street layouts that enhance the quality of outdoor life.
- The existing built and non-built landscapes would be accessed and integrated with the new.

2.2.1 Community Development and Management Plan Provisions

2.2.1.1 Lease of land

Forts Eustis, Story, and Monroe would grant FESMFH a lease of the approximately 316 acres currently used for family housing and family housing support. The installations also would grant a 50-year lease for additional parcels totaling approximately 141 acres for siting of new family housing and ancillary supporting facilities to be constructed, operated, and maintained by FESMFH. Lease of these parcels would be subject to several conditions imposed by the Army. The lease would be subject to all existing easements, or those subsequently granted, as well as established access routes for roadways and utilities located, or to be located, on the premises. The lease would include clauses that achieve the following:

- Prohibit FESMFH from storing hazardous waste (above those quantities generated in routine operations and immediately disposed of) or taking any actions that would cause irreparable injury to the land. FESMFH would be required to comply with all applicable federal, state, interstate, or local laws, regulations, conditions, or instructions affecting its activities. The Army also would include clauses in the leases permitting the Army's periodic inspection of the property to ensure its safe condition and its proper use in accordance with the terms of the lease.
- Prohibit discharging of waste or effluent from the premises in such a manner that the discharge would contaminate streams or other bodies of water or otherwise become a public nuisance.
- Prohibit removing or disturbing, causing, or permitting to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, remains, or objects of antiquity. If such items were discovered, FESMFH would be required to immediately notify the Installation Commander or his designated representative and protect the site and the material from further disturbance until the Installation Commander or designated representative gives clearance to proceed.
- Require the maintenance of all soil and water conservation structures and take appropriate measures to prevent or control soil erosion on the premises. These measures would be addressed in permits (e.g., Clean Water Act Section 404 permits) and in Storm Water Pollution Prevention Plans (SWPPPs).
- Prohibit the cutting of timber; conduct of mining operations; removal of sand, gravel, or kindred substances from the ground; commitment of waste of any kind; or in any manner substantially changing the contour or condition of the premises except as authorized though permits or by the Installation Commander or his designated representative.

2.2.1.2 Existing family housing areas

2.2.1.2.1 Fort Eustis

Existing family housing at Fort Eustis is grouped into eight distinct communities identified by village names. The villages are distributed throughout the cantonment area of the installation. There are also four farmhouse-style homes. Table 2-1 provides information concerning Fort Eustis's housing areas, inventory of existing units, and occupants (by grade). Table 2-2 shows the installation's housing stock by year of construction. Existing family housing occupies 222 acres.

Inchon. Inchon Village is in the northwestern corner of the installation and cantonment area. It is bordered by 28th Street, Madison Avenue, Jefferson Avenue, Heiner Street, and 25th Street; Sternberg Street bisects the village from northwest to southeast. All of its 213 units were constructed in 1957. Buildings in the village are numbered 302 to 350. Numerous parking areas are provided for residents, four playgrounds are located within the perimeter of the village, and there is a sports field across Jefferson Avenue.

Table 2-1. Fort Eustis Housing (current).

Housing Area	Number of Units	Occupant Grades
Inchon Village	213	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
Cherbourge Village	101	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
LeHavre Village	60	General, Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
St. Nazaire Village	26	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
Okinawa Village	387	General, Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
Marseilles Village	99	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
New Port Village	23	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
Antwerp Village	39	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
Farmhouses	4	General, Senior, Company, and Junior Non-commissioned officers, and enlisted
Total units	**952**	

Table 2-2. Fort Eustis Housing Stock by Year of Construction.

Constructed	2 BR	3 BR	4–5 BR	Total
1941			4	4
1957	64	236		300
1958		456		456
1962		180	12	192
Totals	**64**	**872**	**16**	**952**

Cherbourge. Cherbourge Village is in the southeast corner of the cantonment area. Pershing Avenue borders it to the west, and Thompson Circle (off Pershing Avenue) provides ingress and egress for village residents. The village's 101 units were constructed in 1962. The buildings in the village are numbered 1100 to 1120. Numerous parking areas are provided for residents, and three playgrounds are within the perimeter of Cherbourge Village.

LeHavre. LeHavre Village lies west and southwest of Cherbourge Village off Patton Avenue and Van Voorhis Street. An open area of approximately 5 acres lies between the largest concentration of buildings to the north and the southernmost buildings in the village. LeHavre Village has 60 units, which were constructed in 1962. Buildings are numbered 1920 to 1990. Jackson Avenue, Butner Street, Williford Street, and Hagood Street provide access to the units.

St. Nazaire. St. Nazaire Village lies southwest of LeHavre Village on the south side of Wilson Avenue. It has 26 units, which were constructed in 1957 and are numbered 2101 to 2122. Irwin Street runs east to west through the village.

Okinawa. Okinawa Village is in the center of the cantonment area and is somewhat separated from the other family housing villages. Fifty-two of the village's units were constructed in 1957, an additional 327 were built in 1958, and the village was completed in 1962 with the construction of an additional 8 units. Washington Boulevard runs to the west of the village, Jackson Avenue to the north, and Marshall Street and Madison Avenue to the south. It is bisected from northwest to southeast by Somervell Street, and from north to south by 11^{th}, 12^{th}, 13^{th}, and 14^{th} Streets. Buildings are numbered 2300 to 2393. Five playgrounds and numerous parking areas are provided for the village's residents.

Marseilles. Marseilles Village is west of LeHavre Village. Its 99 units were constructed in 1958, and they are numbered 2512 to 2568. Cole Street and Bullard Street run north to south through the village. Pratt Place provides ingress and egress for residents in the western part of the village, and Hagood Street and Van Voorhis Street run east to west through the eastern part of the village. The 5-acre open area in LeHavre Village lies east of the eastern part of the village, and two sports fields lie to the north of the village.

New Port. New Port Village is in the southern part of the cantonment area to the west of Marseilles Village and northwest of Antwerp Village. The 23 units that compose the village were constructed in 1962 and are numbered 2760 to 2782. Wilson Avenue runs south of the village, and Fergusson Circle,

McManus Place, and Tracy Place provide ingress and egress for residents. Open areas lie east, west, and south of the village.

Antwerp. Antwerp Village is the southernmost family housing village at Fort Eustis. It lies southeast of New Port Village and southwest of St. Nazaire Village. Nine of its units were constructed in 1957, and the other 30 units were built in 1958. Village units are numbered 2925 to 2950. The village lies off Wilson Avenue, and Summerall Circle provides circulation for residents in the village. The village is surrounded by vacant land.

Farmhouses. The farmhouse-style houses are located south of Cherbourge Village and east of LeHavre Village off Dwyer Circle (unit 1129) and at the west end of Lee Boulevard near the Third Port (unit 436). The four units were constructed in 1941. Six guest cottages are adjacent to the two farmhouses off Dwyer Circle.

2.2.1.2.2 Fort Story

Existing family housing at Fort Story is mostly in two major areas in the eastern portion of the cantonment area, with additional individual units scattered throughout the installation. Table 2-3 provides information concerning Fort Story's housing areas, inventory of existing units, and occupants (by grade). Table 2-4 shows the installation's housing stock by year of construction. Existing family housing occupies 23 acres.

Table 2-3. Fort Story Housing (current).

Housing Area	Number of Units	Occupant Grades
300 Area	40	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
400 Area	108	Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
Stand Alone Units	15	General, Senior, Field, Company, Senior Non-commissioned, and Junior Non-commissioned officers, and enlisted
Total units	**163**	

Table 2-4. Fort Story Housing Stock by Year of Construction.

Constructed	2 BR	3 BR	4 BR	5 BR	Total
1917				2	2
1945		1			1
1947	4	4	2		10
1958		150			150
Totals	**4**	**155**	**2**	**2**	**163**

The 40 units of the 300 area are numbered 320 to 329 and are off Atlantic Avenue and Santiago Road at the eastern end of the cantonment area. They were constructed in 1958. The 108 units of the 400 area were also built in 1958 and are across Atlantic Avenue from the 300 area. Manilla Road, Santiago Road, and Vera Cruz Road bisect the area north to south. The units are numbered 440 to 456. Of the scattered individual housing units, 2 were constructed in 1917, 1 in 1945, 10 in 1947, and 2 in 1958. Individual unit 587 is northwest of the 300 area near Sansapor Road and Cape Henry Road. Individual units 709, 710, 711, 718, 723, 731, 732, 734, and 893 are near the Atlantic Ocean in the north-central portion of the installation off Atlantic Avenue, Luzon Road, Leyte Road, and Omaha Beach Road. Units 904, 906, 911, and 912 are in the northwestern portion of the installation near the Atlantic Ocean and off Atlantic Avenue, west of the US Marine Corps buildings. Unit 1079 is in the southwestern part of the installation near Hospital Road.

2.2.1.2.3 Fort Monroe

Wherry Housing. The existing Wherry Housing Area at Fort Monroe is in the eastern and northeastern portions of the installation. The Wherry housing is proposed to be demolished and currently occupies approximately 26.5 acres. It was constructed in 1952.

Historic Units. Non-Wherry historic housing at Fort Monroe is scattered throughout the southern portion of the installation and occupies approximately 44.5 acres. The units were constructed from 1819 to 1943. Table 2-5 provides information concerning Fort Monroe's housing areas, inventory of existing units, and occupants (by grade). Table 2-6 shows the installation's housing stock by year of construction.

Table 2-5. Fort Monroe Housing (current).

Housing Area	Number of Units	Occupant Grades
Wherry Housing	206	All grades
Historic Housing	183	All grades
Total units	**389**	

2.2.1.3 Development strategy

In developing the CDMP, Forts Eustis, Story, and Monroe and FESMFH considered various alternatives to implement the proposed action. Under the proposed CDMP, FESMFH would construct 1,212 new units, demolish 1,317 units, renovate 1 unit (at Fort Story), and complete revitalization of non-Wherry historic housing units at Fort Monroe. Development would begin in the undeveloped areas of Inchon Village at Fort Eustis, Capehart Village–400 Area at Fort Story, and the southernmost Wherry Housing Area at Fort Monroe. Implementation also would require that FESMFH operate and maintain all family housing for a period of 50 years, as well as construct, operate, and maintain the ancillary supporting facilities. The development plan has a variety of options for family housing units, including the following:

- *Technical revitalization:* Replace or repair various housing components to upgrade units to standard (e.g., replace dishwasher, replace roof, replace light fixtures, repair driveway and sidewalk).

Table 2-6. Fort Monroe Housing Stock by Year of Construction.

Wherry Housing Units					
Constructed	**1 BR**	**2 BR**	**3 BR**	**4–5 BR**	**Total**
1952	6	90	110	0	206
Totals	**6**	**90**	**110**	**0**	**206**
Historic Housing Units					
Constructed	**2 BR**	**3 BR**	**4 BR**	**5 BR**	**Total**
1819–1892		13	23	4	40
1900–1934	43	50	36	10	139
1943		2	2		4
Totals	**43**	**65**	**61**	**14**	**183**

- *Functional replanning:* Add, modify, or improve the floor plan or structure to enhance livability (e.g., convert two 2-bedroom units into one 4-bedroom unit).
- *Redesignation:* Modify the number of bedrooms in a housing unit without construction (e.g., redesignate a 3-bedroom home as a 2-bedroom home with a family room).
- *Demolition/*removal*:* Completely remove housing unit without replacing.
- *Demolition/*replacement*:* Completely remove housing unit and replace with alternative housing unit.
- *Infill/existing:* Build replacement housing unit in an existing housing area.
- *Replacement/*undeveloped *land:* Build replacement housing unit on an unoccupied site.
- *Replacement/*existing*:* Build replacement housing unit on an existing/occupied housing site.

2.2.1.3.1 Fort Eustis

Table 2-7 shows the actions that FESMFH would take under the CDMP to improve the family housing at Fort Eustis. Details of the proposed development strategy for each housing area follow.

Inchon Village. Demolish all 213 housing units; build 464 new duplex units; make road improvements throughout the village and in conjunction with the new access road; add a neighborhood center, green space, and parks.

Cherbourge Village. Demolish 101 housing units; build 94 new duplex units; make road improvements throughout the village; add playgrounds and a neighborhood center.

LeHavre Village. Demolish 60 housing units; build 124 new duplex units; make road improvements throughout the village; add a new park and green space.

Table 2-7. Fort Eustis Housing Actions.

Village	Housing Units	Notes
Inchon Village	213 existing 213 demolish 464 new 464 end state	Demolish all 213 housing units. Build 464 new duplex units. Road improvements throughout village and in conjunction with new access road. Add neighborhood center, green space, and parks.
Cherbourge Village	101 existing 101 demolish 94 new 94 end state	Demolish 101 housing units. Build 94 new duplex units. Road improvements throughout village. Add playgrounds and neighborhood center.
LeHavre Village	60 existing 60 demolish 124 new 124 end state	Demolish 60 housing units. Build 124 new duplex units. Road improvements throughout village. Add new park and green space.
St. Nazaire Village	26 existing 26 demolish 0 end state	Demolish 26 housing units. No new housing units will be built at this time. No new road improvements.
Okinawa Village	387 existing 387 demolish 0 end state	Demolish 387 housing units. No new housing units will be built. The land will be transferred back to the Army after demolition.
Marseilles Village	99 existing 99 demolish 88 new 88 end state	Demolish 99 housing units. Build 88 new duplex units. Road improvements throughout village. Add new parks and green spaces.
New Port Village	23 existing 23 demolish 0 end state	Maintain 23 existing housing units for 5 years, then demolish all 23 units.
Antwerp Village	39 existing 39 demolish 104 new 104 end state	Demolish 39 existing housing units. Build 104 new single family and duplex units. Road improvements throughout village. Add parks and green spaces.
Farmhouses	4 existing 4 demolish 0 end state	Demolish existing housing units. Construct a neighborhood center as part of Cherbourge Village.
All Fort Eustis Housing Areas	**952 existing** **952 demolish** **874 new** **874 end state**	**Total Demolish – 952 units** **Total New Housing – 874 units** **End State – 874 housing units**

St. Nazaire Village. Demolish 26 housing units. No new housing units will be built initially; no road improvements will be made.

Okinawa Village. Demolish 387 housing units; transfer the land back to the Army after demolition. No new housing units will be built.

Marseilles Village. Demolish 99 housing units; build 88 new duplex units; make road improvements throughout the village; add new parks and green space.

New Port Village. Maintain 23 existing housing units for 5 years, then demolish all the units.

Antwerp Village. Demolish 39 existing housing units; build 104 new single-family and duplex units; make road improvements throughout the village; add parks and green space.

Farmhouses. Demolish 4 existing units; add a neighborhood center in the location of 2 farmhouses, which would become part of Cherbourge Village; demolish the farmhouses in the 400 block.

2.2.1.3.2 Fort Story

Table 2-8 shows the actions that FESMFH would take under the CDMP to improve the family housing at Fort Story. Details of the proposed development strategy for each housing area follow.

Table 2-8. Fort Story Housing Actions.

Village	Housing Units	Notes
Capehart Housing	148 existing	Demolish all 148 housing units.
300 Area	148 demolish	Build 244 new townhouse units.
400 Area	244 new	Add new neighborhood center.
	244 end state	Road improvements throughout village.
		Add parks and open green space.
Stand-alone housing	15 existing	Demolish 11 housing units.
	11 demolish	Renovate 1 unit, which will remain in the housing
	1 renovate	inventory.
	3 units transferred	Transfer 3 units back to the Army.
	5 new	Build 5 new Field Grade and Senior NCO single-family
	6 end state	houses.
All Fort Story	**163 existing**	**Total Demolish – 159 units**
Housing Areas	**159 demolish**	**Total New Housing – 249 units**
	249 new	**Total Renovation – 1 unit**
	1 renovate	**Transfer back to the Army – 3 units**
	250 end state	**End State – 250 units**

Capehart housing (300-Area and 400-Area). Demolish all 148 housing units; build 244 townhouse units; make road improvements throughout the village; add a new neighborhood center; add parks and open space.

Stand-alone housing. Demolish 11 housing units; build 5 new Field Grade Officer and Senior Noncommissioned Officer (NCO) single-famlily homes; renovate one historic unit; transfer three historic units back to the Army.

2.2.1.3.3 Fort Monroe

Table 2-9 shows the actions that FESMFH would take under the CDMP to improve the family housing at Fort Monroe. Details of the proposed development strategy for each housing area follow.

Wherry townhouse and garden apartment housing. Demolish 206 housing units; build 89 new townhome units; add a new neighborhood center; make road improvements throughout the neighborhoods; add a new park and green space.

Table 2-9. Fort Monroe Housing Actions.

Housing Area	Housing Units	Notes
Wherry Housing	206 existing	Demolish 206 housing units.
	206 demolish	Build 89 new townhouse units.
	89 new	Add new neighborhood center.
	89 end state	Road improvements throughout housing areas.
		Add new park and green space.
Historic Housing	183 existing	Complete revitalization of the historic housing units and
	183 end state	maintain all historic housing thereafter.
All Fort Monroe Housing Areas	**389 existing**	**Total Demolish – 206 units**
	206 demolish	**Total New Housing – 89 units**
	89 new	**Total Renovation – 0**
	0 renovate	**End State – 272 units**
	272 end state	

Historic housing. Complete revitalization of the non-Wherry historic housing units and maintain all non-Wherry historic housing thereafter.

2.2.1.4 Conveyance

All existing family housing units would be conveyed to FESMFH. The Army would convey this property with encumbrances, notices, and requirements obligating FESMFH to certain actions. As appropriate to each structure or group of structures, the deed would identify the presence of asbestos-containing materials, lead-based paint, and radon. The Army also would identify any easements and rights-of-way that might affect use of the conveyed property. These encumbrances would be in the form of covenants in the deed and would be binding on the transferee, as well as any subsequent successors or assigns. The negotiated terms of transfer or conveyance might result in requirements for FESMFH to maintain the status quo of historic buildings or archaeological sites or might impose a requirement for consultation with the State Historic Preservation Officer (SHPO) prior to any actions affecting such resources.

2.2.1.5 Barrier-free design

New family housing and ancillary supporting facilities must adhere to the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines* promulgated by the Access Board (formerly known as the Architectural and Transportation Barriers Compliance Board) pursuant to the Architectural Barriers Act of 1968, Rehabilitation Act of 1973, and Americans with Disabilities Act of 1990. These standards require that at least 5 percent of new family housing be designed and built to be accessible, or easily modifiable for access, by persons with physical disabilities.

2.2.1.6 Construction standards

Construction standards to be applied to family housing would be determined during negotiations regarding the CDMP and are expected to lie somewhere between military specifications and local community building codes.

2.2.1.7 Operation and maintenance

FESMFH would operate and maintain for 50 years all existing and new family housing units and ancillary supporting facilities, including associated parking lots and sidewalks, in accordance with quality standards established in the CDMP. At the option of Forts Eustis, Story, and Monroe, the installations could extend the period of operation and maintenance and the leases of land supporting family housing for an additional 25 years.

2.2.1.8 Rental rates and payments

The rental rate to be paid by any soldier would not exceed his or her BAH. The installations would continue to categorize family housing by grade group (e.g., Junior NCO, Senior NCO, Company Grade).

2.2.1.9 Occupancy guarantee

Forts Eustis, Story, and Monroe would not guarantee for FESMFH the level of occupancy of the housing units. Under special circumstances such as large-scale long-term deployments, FESMFH could rent vacant family housing units to tenants other than service members with dependents in accordance with Table 3-3 in Army Regulation (AR) 210-50 at rental rates of no less than what a soldier would be charged. The basic lease agreement that FESMFH proposes to use for such rentals must be approved by the Installation Commander.

2.2.1.10 Regulatory controls

The development plan is intended to adopt the International One and Two Family Dwelling Code, 1998 edition, by the International Code Council, Inc., with standardized requirements for building, plumbing, mechanical, and electrical by incorporation of a compilation of data from the following national model codes: Uniform Building Code; Standard Building Code; National Building Code of the Building Officials and Code Administrators International, Inc. (BOCA); Standard Plumbing Code; International Building Code; BOCA National Plumbing Code; Uniform Mechanical Code; Standard Mechanical Code; Standard Gas Code; BOCA National Mechanical Code; Code for the Installation of Heat-Producing Appliances; National Electrical Code; applicable Virginia state codes and regulations; and applicable federal codes and regulations. All regulatory requirements and standards will be finalized and agreed to within the CDMP.

2.2.1.11 Utilities

The Army and FESMFH have developed a utility program that promotes energy conservation and reduced utility consumption. Under this program and in compliance with DA policy, FESMFH would pay for household utilities (water, sewage disposal, natural gas, and trash removal, excluding electric) regardless of the amount. Electricity will be paid by the soldiers through the BAH. Any excess electricity used (above the norm for the type of dwelling unit) would be paid by the individual soldier.

2.2.1.12 Police and fire protection

Forts Eustis, Story, and Monroe would provide police and fire protection for reimbursement from FESMFH.

2.2.1.13 Jurisdiction

Forts Eustis, Story, and Monroe have historically been exclusive federal legislative jurisdiction enclaves. This means that only federal laws have been enforced on the installations. For instance, all prosecutions for crimes under federal law (e.g., shoplifting in the post exchanges) occur only in federal court. The installations would retain legislative jurisdiction.

2.2.1.14 Implementation commencement

Assuming execution of the CDMP by Forts Eustis, Story, and Monroe and FESMFH before the middle of November 2003, implementation of the CDMP would begin in February 2004.

2.2.2 Siting of New Housing

Forts Eustis, Story, and Monroe have recognized the need to provide land for additional family housing. Evaluation of potential sites for additional housing at the installations resulted in identification of parcels that meet the criteria described below. These parcels include land near existing housing areas at the three installations and along the perimeter of the cantonment areas at Forts Eustis and Story. Other potential family housing sites did not meet the selection criteria because they are too distant from present family housing area resources; would impose undue losses on natural, ecological, and cultural resources; or would create incompatibilities among adjacent land uses. In siting the additional housing, Forts Eustis, Story, and Monroe have considered the following factors.

2.2.2.1 Proximity to existing housing

New family housing and ancillary supporting facilities would be located near existing family housing. From a land use pattern perspective, this approach allows for maintaining consistency in adjacent land uses in larger general areas. It also places residents close to existing supporting facilities such as schools, community clubs, the post exchange, the commissary, and auto service stations. Such proximity helps create a sense of "small town" neighborhoods where principal shopping destinations are nearby. Locating new neighborhoods close to existing ones helps to reduce development costs by enabling use of existing utility corridors and other infrastructure. Finally, keeping family housing in or near a generally developed portion of the installation avoids opening newer, more distant areas. Risk of potential effects on ecological systems (e.g., wildlife disturbance, habitat fragmentation) are thus decreased.

2.2.2.2 Sufficient size

Lack of adequate acreage for proposed housing could adversely affect an otherwise pleasing atmosphere by creating too high a building density. Allocation of an adequate amount of property would result in a density that strikes an appropriate balance between the residents' desire for space and an appropriate use of land resources.

2.2.2.3 Physical features

Any site for family housing must not be located on steep terrain, in areas heavily incised by watercourses, or within any stream buffers, wetland buffers, or floodplains.

2.2.2.4 Compatible land use

Family housing parcels must not result in creation of incompatible land uses (e.g., within airfield runway accident potential zones or clear zones, within or near high-noise areas, on contaminated properties, or adjacent to off-post industrial property).

2.2.2.5 Minimal loss of natural, ecological, and cultural resources

Siting of family housing must avoid loss of natural, ecological, and cultural resources such as wetlands, listed or sensitive species or their habitats, wildlife species' travel corridors, archaeological sites, and structures eligible for the National Register of Historic Places (NRHP). The Keeper of the NRHP has identified Fort Story as eligible for the NRHP. A Programmatic Agreement between the Virginia SHPO and the Department of the Army to address historic district issues and compliance with Section 106 of the National Historic Preservation Act is being drafted.

2.2.2.6 Military security

Parcels must be located so as not to enable or encourage residents to interfere with military security requirements or to pose risk of breach of military security. Housing areas should not be located near sites supporting activities to which access is controlled for security reasons.

2.2.2.7 Operational safety

Parcels should be located away from operational areas to avoid potential safety risks to residents. In addition, parcels for siting of family housing should not be located so that residents would be required to travel past or through training areas while transiting to off-base locations.

SECTION 3.0
ALTERNATIVES

Forts Eustis, Story, and Monroe have identified four alternatives for the proposed action, as well as a no action alternative. These alternatives are presented below.

3.1 THE PREFERRED ALTERNATIVE (ARMY RCI PROGRAM)

Implementation of the proposed action, as described in Section 2.2, is the preferred alternative of Forts Eustis, Story, and Monroe. Use of various MHPI authorities, proposed for and identified in the CDMP put forth by FESMFH and negotiated by the installations, would achieve the purpose of and need for the proposed action as described in Section 1.2. This alternative is evaluated in detail in Section 4.0 of this EA.

3.2 THE PARTIAL PRIVATIZATION ALTERNATIVE

Under the partial privatization alternative, the installations would subject only a portion of their family housing to the RCI. Family housing in good condition (not needing demolition or renovation) would remain subject to Army management for maintenance and operational control.

Privatization of only a portion of the installations' family housing inventory would have three substantial drawbacks. First, the condition of the family housing retained by the Army would change over time, resulting in a need for its renovation or replacement. Failure to include the entire inventory of housing in the RCI would only delay action to provide adequate housing for soldiers and their dependents. Second, two management regimes (the Army's and the Development Partner's) would not be as cost-efficient as one. Moreover, from a development entity's perspective, maximum potential cash flow is important to support development and operation of the ancillary supporting facilities desired by an installation? activities that traditionally do not provide independent sources of revenue for their sustainment. Third, partial privatization would not fully meet the Army's purpose of and need for the proposed action. Together, these factors render consideration of partial privatization at Forts Eustis, Story, and Monroe not feasible, and therefore the alternative is not evaluated in detail in this EA.

3.3 THE PRIVATE SECTOR RELIANCE ALTERNATIVE

Under the private sector reliance alternative, the installations would rely solely on the private sector to meet the housing needs of personnel assigned to the installation. The installation would terminate family housing programs, dispose of existing family housing units, and convert the land now supporting housing areas to other uses.

The alternative is premised, in part, on the view that competitive marketplace forces would lead to the creation of sufficient affordable, quality family housing. Data vary, but in general experience shows that soldiers and their families living off-base must cover 15 to 20 percent of their costs out-of-pocket. Moreover, living on-base has several intangible benefits to soldiers and their families. These include camaraderie and esprit de corps among the military personnel, a sense of "family" among dependents (especially during soldiers' deployments), proximity to the workplace (thereby avoiding lengthy commutes), and soldiers' comfort level in knowing that their dependents are residing in a safe community while they are deployed or serving on temporary duty at a distant location.

As a practical matter, termination of family housing at the installations would prove difficult. If on-base housing were to be terminated over a period of years, in the absence of maintenance funding, the existing housing would become unsuitable because of age or necessity of repairs. Residents could then find themselves living in blighted and partially abandoned neighborhoods. If on-base housing were to be terminated at once, it is unlikely the private sector could provide the requisite amount of affordable, quality housing as well as roads and other support amenities on short notice.

Renovation of many of the family housing units at the installations is economically sound. Termination of family housing programs would involve abandonment of immense investments in those facilities. The various consequences of reliance on the private sector and the management difficulties of effecting termination of family housing on base would prove challenging. In light of the aggregate value of family housing units amenable to renovation, termination of a family housing construction and maintenance program would gravely contravene the fiscal responsibilities the Congress expects of the Army. For these reasons, this alternative is not reasonable and is not further evaluated in this EA.

3.4 THE LEASING ALTERNATIVE

Statutory authorities exist for the installations to ensure the availability of adequate, affordable housing through use of long-term leases of housing for military family use. Key aspects of the two laws providing these authorities are summarized below.

- ***Long-term leasing of military family housing to be constructed.*** Family housing obtained through use of this authority, which appears at 10 U.S.C. § 2835, is most often referred to as "Section 801 Housing." Under this authority, the Army may, through competitive contract procedures, have a developer build or renovate (to residential use) family housing units near an installation. Housing units under this authority must meet Department of Defense (DoD) specifications. The Army may then lease the units for use as family housing for a period of not more than 20 years. At the end of the lease term, the Army has the option to purchase the housing units from the private developer.
- ***Military housing rental guarantee program.*** Family housing obtained through use of this authority, which appears at 10 U.S.C. § 2836, is most often referred to as "Section 802 Housing." Under this authority, the Army may award a competitive contract to a private developer or a state or local housing authority to construct or rehabilitate housing on or near an installation that has a shortage of housing for personnel with or without accompanying dependents. Under the contract, the Army guarantees occupancy levels of the housing units, at rental rates comparable to those for similar units in the same general market. Housing units under this authority must comply with DoD specifications or, at the discretion of the Service secretary, local building codes. A rental guarantee agreement may not exceed 25 years in duration, and it may be renewed only for housing that is located on government-owned land. The agreement may provide that utilities, trash collection, snow removal, and entomological services be furnished by the Army at no cost to the occupant to the same extent such services are provided to occupants of base housing.

There has been only limited experience with either of the foregoing authorities. An important drawback affecting both programs concerns what is known as budget "scoring," the method of accounting for federal government obligations as required by the Budget Enforcement Act of 1990. Scoring ensures that all government obligations are accounted for when long-term liability is incurred (i.e., during the first year of a project). Scoring guidelines issued by the federal Office of Management and Budget require that a project must be fully funded with sufficient budget authority in its first year to cover the government's long-term commitment. In other words, all potential costs associated with long-term leasing or rental guarantee programs must be recognized in the first year, and they must be considered as part of the Army's total obligation authority (the total monies appropriated by Congress for use by the Army in a

given year). For some privatization projects, such as military leased housing, the Army's obligations for scoring purposes amount to the net present value of the total rent under the lease. These amounts can be nearly as great as the sums required under traditional military construction financing for Army-initiated construction of similar facilities.

The Section 801 housing program and Section 802 rental guarantee program only partially address the Army's purpose and need for the proposed action. Because of the scoring guidelines, the Army would obtain very little or no leverage benefit.

Enactment of new authorities in the MHPI suggests Congress's recognition that the drawbacks of Sections 801 and 802 outweigh the potential benefits to the Army. Although use of either or both of the Section 801 and Section 802 authorities would be possible, their use would not be reasonable when compared to the better flexibility and economic advantages of the new authorities offered by the RCI to the Army and to soldiers and their families. Accordingly, the off-post leasing alternative is not further evaluated in this EA.

3.5 THE NO ACTION ALTERNATIVE

Inclusion of the no action alternative is prescribed by CEQ regulations. The no action alternative serves as a baseline against which the impacts of the proposed action and alternatives can be evaluated.

Under the no action alternative, Forts Eustis, Story, and Monroe would not implement the proposed action, but would continue to provide for the family housing needs of their personnel through use of traditional military maintenance and construction procedures. The installations would continue to obtain funding for family housing through the Congressional authorization and appropriations process. Based on historical trends, it is assumed that the amount of Congressional funding for family housing would not change and that the housing maintenance backlog would continue to increase. Any major changes to existing family housing or construction of new housing would require that appropriate NEPA analyses be completed before implementing such actions.

SECTION 4.0
AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 FORT EUSTIS

4.1.1 LAND USE

4.1.1.1 Affected Environment

4.1.1.1.1 Regional setting

Fort Eustis covers approximately 8,228 acres of a peninsula that juts out from the eastern shore of the James River from the city of Newport News in southeastern Virginia. It is bounded by the Warwick River to the east and the city of Newport News to the east and north. The peninsula rises from an elevation of about 5 feet above MSL on Mulberry Island to the south to approximately 30 feet above MSL in the northern portion of the peninsula where the cantonment area is located.

4.1.1.1.2 Installation land use

Installation-wide land use. The cantonment area covers approximately 2,300 acres and comprises a concentration of built-up land uses, including administrative offices, community facilities, military family housing for a variety of ranks, bachelor housing, barracks, industrial, maintenance shops, medical facilities, recreational facilities, and supply/storage sheds. The remaining land on the installation to the southeast is mostly wetlands and is used for military training.

Fort Eustis' family housing areas consist of eight distinct housing groups identified by village names and four farmhouse-style homes, as described in Section 2.2.1.2. Noncommissioned officers and enlisted personnel and their families are housed in the northeastern portion of the cantonment area. The villages of Cherbourge, LeHavre, St. Nazaire, Antwerp, New Port, and Marseilles—in the southern and eastern cantonment area—house field- and senior-grade military officers and their families. Okinawa Village, or the 2300 block, is in the center of the cantonment area. The Commanding General is housed in one of the farmhouses on the westernmost edge of the cantonment area (Figure 2-1).

Coastal Zone Consistency. Fort Eustis is subject to the Virginia Coastal Resources Management Program (VCP), a program approved by the National Oceanic and Atmospheric Administration (NOAA) pursuant to the Costal Zone Management Act (CZMA). Federal activities that are reasonably likely to affect any land or water use or natural resource of Virginia's designated coastal resources management area must be consistent with the enforceable policies of the VCP. A consistency determination, in accordance with the VCP, has been prepared for the proposed action (Appendix B). A review of Virginia's rules of coastal zone management has determined that the proposed action is consistent with the long-term goals and policies of the VCP.

Future development on the installation. An elementary school is under construction on the east side of the cantonment area, between Inchon Village and the southeastern villages of Cherbourge and LeHavre. The school is located across from the large sports field and parade grounds. A new access road to the installation is planned to be built over the Warwick River from Madison Avenue, to facilitate the deployment of military equipment, ease traffic congestion for off-post workers, and to improve access to the city of Newport News. The road would lead almost directly to the residential areas on the installation.

4.1.1.1.3 Surrounding land use

Fort Eustis is buffered from surrounding land uses by the James River to the west and the Warwick River to the east. Skiffes Creek separates the installation from other land uses to the north. The city of Newport News lies east of the installation, beyond the Warwick River. Suburban communities border the river across from the installation. Housing areas are located and planned to be built near Fort Eustis, and there are convenience stores and service shops near these locations.

No major new construction in the region of influence is known to be planned.

4.1.1.2 Consequences

4.1.1.2.1 Proposed action

Long-term direct moderate beneficial effects[1] on installation land use would be expected. Areas currently used for family housing would continue to be used for that purpose, and improvements such as new housing, new neighborhood centers, athletic areas, roads, parks, and green spaces would improve the quality of the use of the land. A few open areas—including one adjacent to Inchon Village, one adjacent to Marseilles Village, and one in Antwerp Village—would be developed as housing. The open area north of Madison Avenue, formerly housing and now vacant, would be redeveloped as housing and would incorporate a small open area. All housing in Okinawa Village would be demolished and the land would be transferred back to the Army after demolition. All areas that are currently not developed but that would be developed with housing or related structures are within the cantonment area and are adjacent to existing housing. Issues of compatibility between land uses on the installation and with neighboring land uses, therefore, are not foreseen, nor would the ability of the installation to meet its military mission be adversely affected.

4.1.1.2.2 No action alternative

No effects would be expected. No changes in land use designations would occur under the no action alternative. Family housing areas would remain where they are, and any changes or improvements to housing units would be those undertaken in the course of normal maintenance activities.

4.1.2 AESTHETICS AND VISUAL RESOURCES

4.1.2.1 Affected Environment

Aesthetics and visual resources are those natural resources, land forms, vegetation, and man-made structures in the environment that generate one or more sensory reactions and evaluations by the

1 Throughout the discussions of consequences of the proposed action and no action alternatives, phrases such as "minor beneficial," "negligible adverse," and the like are used. The meanings of these terms are clarified below.

A "direct" effect is one caused by the action and occurring at the same time and place as the action.

An "indirect" effect is one caused by the action but which occurs later in time or farther removed in distance, but which is still reasonably foreseeable.

"Negligible," "minor," and "moderate" all refer to the intensity of effect. Unless otherwise stated, their use does not indicate a significant effect. Specifically, "negligible" indicates that the effect is at the lowest levels of detection. "Minor" indicates that the effect is slight, but detectable. "Moderate" indicates that the effect is readily apparent.

observer, particularly with respect to pleasurable response. Aesthetic resource issues are defined to exclude questions of style, taste, design concept, and urban amenity.

The housing areas, built predominantly in the late 1950s and early 1960s, are composed of buildings and structures that vary in size and style. Brick and wood siding construction, ample parking, limited landscaping, and lawns characterize the units. The farmhouse-style homes, built in 1941, are separated from other units and are more spacious.

Certain aesthetic elements contribute to the overall visual impression of Fort Eustis:

- Facilities and parking areas often disrupt the scenic natural environment.
- Visually disorganized elements—including substations, exterior mechanical systems (heating, ventilating, and fuel storage, for example), dumpsters, storage yards, and maintenance yards—are often unscreened.
- Planting is scarce, and use of native vegetation is quite sparse.
- Parking areas in Inchon, Cherbourge, Okinawa, and Marseilles Villages are situated directly in front of the housing units.

4.1.2.2 Consequences

4.1.2.2.1 Proposed action

Short-term direct minor adverse and long-term direct moderate beneficial effects would be expected. Construction activities are aesthetically displeasing. During the construction and renovation phase of the RCI program, construction equipment would be a visual presence. The development of additional housing in the undeveloped areas would involve clearing the land, which would alter the natural views. Beneficial effects would be expected, however, from the creation of new open spaces, modernized structures, and improved neighborhood layouts. As a result of implementation of the proposed action, the overall aesthetic appeal of the housing areas would be greatly improved.

4.1.2.2.2 No action alternative

Long-term indirect minor adverse effects would be expected. Under the no action alternative, the Army would continue to be responsible for maintenance and renovation of existing housing and for new construction as necessary. Over time, housing would be expected to continue to deteriorate and the visual and aesthetic resources on the installation would degrade.

4.1.3 AIR QUALITY

4.1.3.1 Affected Environment

Air quality is regulated at the national level through regulations promulgated under the Clean Air Act of 1970 and its subsequent amendments. The act directed The United States Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for air pollutants that endanger public health. EPA subsequently adopted air quality standards for six of these criteria pollutants—ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter (total suspended particulates), and lead particles. The Clean Air Act requires state or local governments to monitor ambient levels of these pollutants and to develop air quality management plans to ensure compliance with the

standards. To evaluate compliance with the NAAQS, EPA has divided the country into attainment and nonattainment areas commonly delineated by Air Quality Control Regions (AQCR) and further separated by county. Each AQCR has multiple air monitoring stations to sample ambient air concentrations of the criteria pollutants. Attainment and nonattainment indicate the compliance status of a region with respect to the NAAQS. Air quality regulations related to Fort Eustis are administered by EPA Region 3 and by the Virginia Department of Environmental Quality (DEQ).

4.1.3.1.1 Regional air quality conditions

The air quality region in which Fort Eustis lies, the Hampton Roads area, is classified by USEPA as marginally in nonattainment for ozone. The area is in attainment with all other NAAQS. USEPA redesignated the Hampton Roads area from a nonattainment area for ozone to an attainment area for ozone in 1997. With the redesignation, the Hampton Roads area is considered a "maintenance" area for 10 years and ozone precursor levels must fall below pollutant *de minimis* levels to reach full attainment status. Fort Eustis is within an area recommended by DEQ to be designated the Hampton Roads Nonattainment Area for ozone, an area that would encompass the cities of Newport News and Hampton, the southeastern point of Virginia from Virginia Beach to Suffolk, and York and James City Counties (USEPA, 2003).

4.1.3.1.2 Fort Eustis air emissions

Starting in 1995 extensive surveys were conducted at Fort Eustis to identify all potential air emission sources and to estimate their total annual emissions. Survey results indicated that there were 627 buildings housing a total of 1,825 air emission sources on the installation. Recorded emissions from these sources in 2002, in tons per year by pollutant category, are listed in Table 4-1. Fort Eustis has a Stationary Source Permit to Operate, issued by DEQ on March 18, 2002. Any new source of air pollutant emissions would have to be reviewed to determine if a permit modification is necessary. Examples of new sources would be a stationary emergency generator, boiler plant, or maintenance facility.

4.1.3.2 Consequences

4.1.3.2.1 Proposed action

Short-term direct negligible adverse effects would be expected. An increase in construction activity, involving trucks and other heavy equipment, would result in emissions of minor amounts of nitrogen oxides (NO_x), particulate matter (PM), carbon monoxide (CO), sulfur oxides (SO_x), and volatile organic compounds (VOCs), but not to a level that would cause the area to exceed the *de minimis* threshold limits for the respective pollutants. Refer to the Record of Non-applicability (RONA) (Appendix C).

Table 4-1. Annual Emissions Summary of Criteria Pollutants from Stationary Sources at Fort Eustis in 2002.

Abbreviation	Pollutant	Emissions (tons/year)
SO_2	Sulfur Dioxide	12.0
NO_x	Nitrogen Oxides	24.9
VOC	Volatile Organic Compounds	14.0
CO	Carbon Monoxide	19.3
PM	Particulate Matter	4.1

Source: Tim Christensen, personal communication, 2003.

4.1.3.2.2 No action alternative

No effects would be expected under the no action alternative.

4.1.4 NOISE

The Noise Control Act of 1972 (Public Law 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974 USEPA provided information on negative effects of noise, identifying indoor and outdoor noise limits that protect public health and welfare (e.g., prevent hearing damage, sleep disturbance, and communication disruption). In addition, sound quality criteria promulgated by USEPA, the U.S. Department of Housing and Urban Development, and DoD have identified noise levels to protect public health and welfare with an adequate margin of safety. These levels are considered acceptable guidelines for assessing noise conditions in an environmental setting. Noise levels below 65 decibels (dB) are considered to be normally acceptable in suitable living environments.

4.1.4.1 Affected Environment

A noise study for Fort Eustis was conducted as a component of the Fort Eustis Master Plan. This study evaluated noise produced by activities at Fort Eustis and identified incompatible land uses on or adjacent to the installation. The study also provided noise contours, which are graphic representations of noise levels around noise-emitting sources. The contours define noise zones, which correspond to exposure guidelines.

According to this and subsequent noise studies, noise sources within the cantonment area of Fort Eustis consist primarily of roadway traffic and general activities associated with office and training activities. There are no significant environmental noise issues at Fort Eustis (SAIC, 1996).

4.1.4.2 Consequences

4.1.4.2.1 Proposed action

Short-term direct minor adverse effects would be expected. Noise would increase during construction activities. The minor adverse effects associated with construction noise would usually be confined to daytime hours during the normal workweek. No long-term effects would be expected.

4.1.4.2.2 No action alternative

No effects would be expected.

4.1.5 GEOLOGY AND SOILS

4.1.5.1 Affected Environment

4.1.5.1.1 Geologic and topographic conditions

Geology and topography. Fort Eustis lies on sediments recently deposited (up to 28 million years ago) of sand and gravel under beach sands interbedded with clays and organic silts of varying thickness. Fort Eustis is low and flat, rising from approximately 5 feet above MSL on Mulberry Island to approximately 30 feet above MSL in the cantonment area.

Seismicity. Virginia is considered to be relatively active seismically, but the earthquakes are rarely strong. The central and western parts of the state are the most active areas; very few earthquakes have been reported in the southeastern part of the state. Since records have been kept, no earthquakes have been centered in the Fort Eustis area. Fort Eustis is located within Earthquake Hazard Zone 2, which means there is a moderate probability for damage should an earthquake occur.

4.1.5.1.2 Soils

The eastern part of Fort Eustis is underlain by stiff surface clays over dense silty sands and shell fragments (USATCFE, 1999). The soils on Fort Eustis are composed of two general groups, the names of which generally indicate where they are found: (1) low river terrace and marsh soils, and (2) low coastal plain upland soils. Twenty-two percent of the installation's soils belong to the low coastal plain upland association. Hydric soils, which can be associated with either soil group, are soils that are saturated, flooded, or ponded for part or all of the growing season. Hydric soils are commonly found in the cantonment area of Fort Eustis.

4.1.5.1.3 Prime farmland

Although the Craven silt loam 0 to 2 percent slopes is considered to be a prime farmland soil, the land in the cantonment area has not been used for agriculture since the installation was established. In addition, much of the land within the proposed RCI footprint is in a built-up condition. Therefore, a Farmland Conversion Impact Rating (Form AD-1006) of the project area is not warranted and no further action is required under the Farmland Protection Policy Act (FPPA).

4.1.5.2 Consequences

4.1.5.2.1 Proposed action

Geologic and topographic conditions. No effects would be expected.

Soils. Short-term direct minor adverse effects would be expected as a result of implementation of the proposed action. In the short-term, construction activities would be expected to result in an increase in soil erosion. Recommended best management practices (BMPs) to reduce soil erosion include silt fences, diversion swales, riprap channels, rock check dams, inlet filter devices, water spreaders, temporary

ground covers, and limiting the area of disturbance. These and other appropriate BMPs would be incorporated into an Erosion and Sediment Control Plan, a SWPPP that would be required to be reviewed at the Fort Eustis Environmental Office. Additionally, FESMFH would be required to obtain a General Construction Storm Water Permit and file it with the Fort Eustis Wastewater and Storm Water Program Manager before beginning construction. The effects of erosion on water quality are discussed in section 4.1.6, Water Resources. No long-term effects to soils would be expected.

Prime farmland. No effects would be expected.

4.1.5.2.2 No action

No effects would be expected.

4.1.6 WATER RESOURCES

4.1.6.1 Affected Environment

4.1.6.1.1 Surface water

A number of small creeks and streams cross the current and proposed housing areas, draining into the Warwick River. A small lake is adjacent to the section of the footprint area near the Third Port where two farmhouse-style houses are located. The footprint circles the lake but does not include it. The proposed footprint areas do not intersect any of the wetlands on Fort Eustis, delineated in 1995. Minor storm water drainages are located within the cantonment area and proposed footprint areas. Storm water runoff is controlled and directed by storm sewers and drainage ditches that discharge either indirectly via creeks and canals or directly into the James and Warwick Rivers.

4.1.6.1.2 Groundwater

The uppermost aquifer at Fort Eustis is about 10–15 feet thick. Being unconfined, groundwater from this aquifer discharges into streams, rivers, and lakes. The upper part of the aquifer comprises the surface of the water table. Recharge of the aquifer is through infiltration of precipitation.

Groundwater on the installation is pumped from six wells, and is mainly used to fill ponds and hazards on the golf course and a sand pool for swimming, and to irrigate the golf course.

4.1.6.1.3 Floodplains

The proposed action areas do not fall within the floodplain (Randy Brown, personal communication, 2002).

4.1.6.2 Consequences

4.1.6.2.1 Proposed action

Surface water. Short- and long-term indirect negligible adverse effects would be expected. In the short term, construction activities would be expected to lead to increased sediment-laden runoff and could result in minor spills or drippage of petroleum compounds, which could drain into surface waters and increase pollutant concentrations in receiving waters. Adherence to the provisions of an Erosion and

Sediment Control Plan, a SWPPP, and a General Construction Storm Water Permit, to be developed by FESMFH in accordance with federal and Virginia law and the Chesapeake Bay Preservation Act, would minimize runoff and water pollution caused by the proposed development. FESMFH would also comply with TCFE Regulation 200-6 and the US Army Transportation Center Integrated Contingency Plan for the prevention of spills to minimize water quality impacts.

In the long term, storm water runoff from some areas of the proposed footprint would increase because of an increase in impervious ground, while in other areas the extent of open space would increase and permit greater infiltration of rain water. Negligible effects on water quality and hydrology would be expected from these changes.

Groundwater. No effects on groundwater quality would be expected.

Floodplains. No effects on floodplains would be expected.

4.1.6.2.2 No action

No effects would be expected.

4.1.7 BIOLOGICAL RESOURCES

4.1.7.1 Affected Environment

4.1.7.1.1 Vegetation

Most of Fort Eustis, with the exception of the cantonment area, is forest or wetland. Common tree species in upland forests include loblolly pine (*Pinus taeda*), yellow poplar (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), white oak (*Quercus alba*), and red maple (*Acer rubrum*) (USATCFE-ENRD, 1998). Shrub and herbaceous species, such as paw paw (*Asimina triloba*), blueberry (*Vaccinium* spp.), various species of fern, false nettle (*Boehmeria cylindrica*), and common greenbrier (*Smilax rotundifolia*) are common as well (USATCFE, 1999). Two noxious weed species are present on the installation—common reed (*Phragmites australis*) and kudzu (*Pueraria lobata*). Although the spread of kudzu has been mostly contained on the installation, the common reed still poses a threat to native plant communities, especially in disturbed areas.

4.1.7.1.2 Wildlife

Common mammals on the installation include small species such as the white-footed mouse (*Peromyscus leucopus*) and short-tailed shrew (*Blarina brevicauda*) (USATCFE, 1999). Other mammal species known to occur on the installation include common species such as the white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), and muskrat (*Ondatra zibethica*).

Common bird species occur on the installation, including the rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), downy woodpecker (*Picoides pubescens*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), white-breasted nuthatch (*Sitta carolinensis*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottus*), European starling (*Sturnus vulgaris*), and song sparrow (*Melospiza melodia*).

4.1.7.1.3 Sensitive species

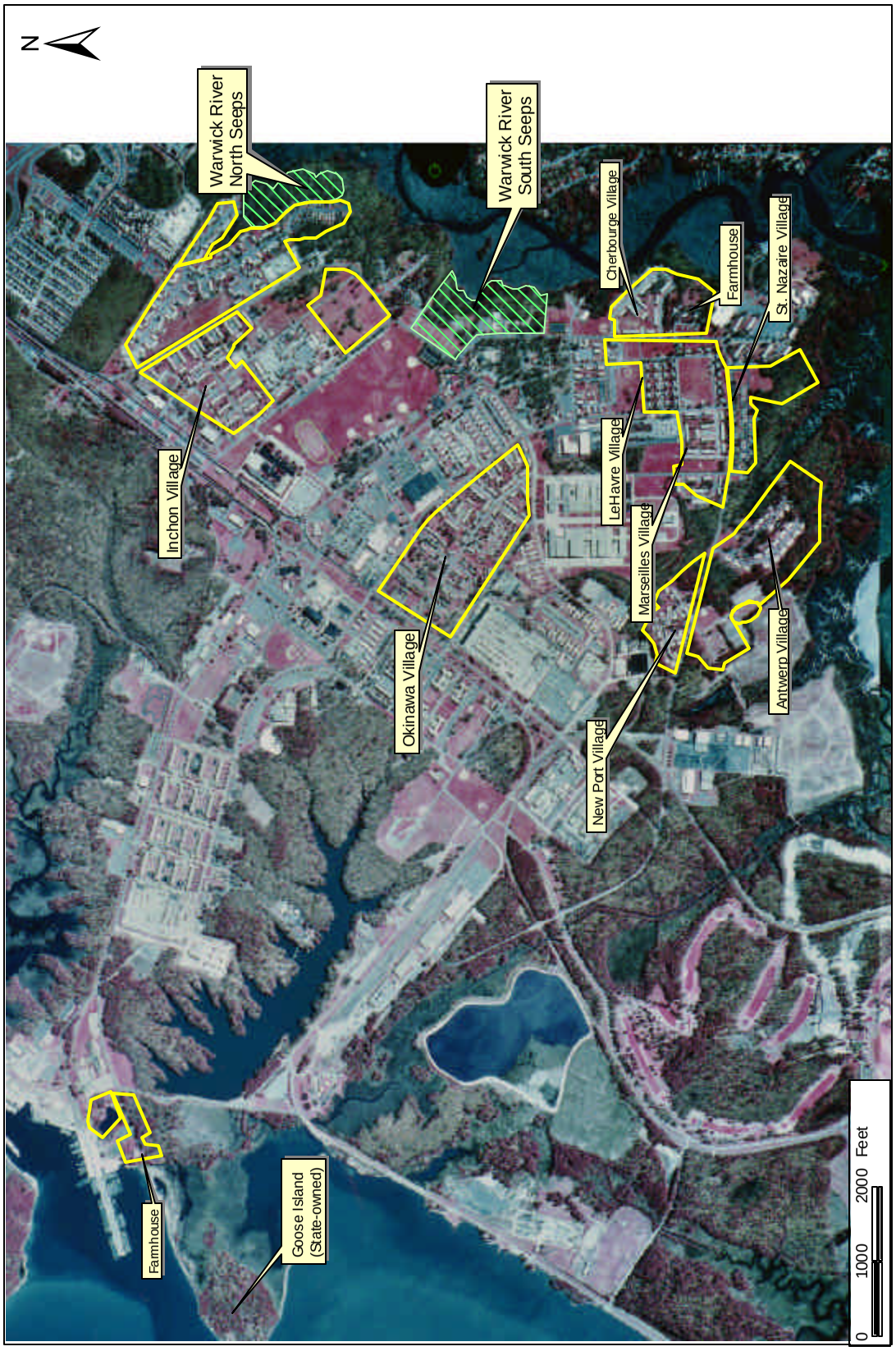
An inventory of endangered, threatened, and rare animal species was conducted on Fort Eustis in 1995–1996 by the Virginia Department of Conservation and Recreation, Division of Natural Heritage (DCR-DNH, 1997). Species targeted in the survey included mammals, birds, reptiles, amphibians, fish, and invertebrates listed as endangered or threatened, or determined to be candidates for listing, by the United States Fish and Wildlife Service (USFWS), Virginia Department of Game and Inland Fisheries, or Virginia Department of Agriculture and Consumer Services. The species described below could be of concern with respect to the proposed action.

Plants. The Virginia Department of Conservation and Recreation Division of Natural Heritage (VADNH) completed a rare plant inventory of Fort Eustis in 1994. Seven wetland plant species on the VADNH Watchlist (those that have between 20 and 100 known occurrences) were identified on Fort Eustis (USATCFE, 1999). Three of the seven plant species on the VADNH Watchlist, few-flowered milkweed (*Asclepias lanceolata*), beaked spikerush (*Eleocharis rostellata*), and three-ribbed arrowgrass (*Triglochin striatum*), have been identified in habitats along the Warwick River. Beaked spikerush and three-ribbed arrowgrass were fairly abundant, with more than 500 plants each among several subpopulations. Few-flowered milkweed was far more rare. These three species have the potential to occur in areas adjacent to the proposed RCI footprint.

Invertebrates. The tidewater interstitial amphipod (*Stygobromus araeus*), a small, blind crustacean and a federal species of concern, was documented on the installation for the first time (USATCFE, 1999). The tidewater interstitial amphipod was collected at the Warwick River Seeps (North and South) during a 1995–1996 survey. VADNH has identified these two freshwater seeps as conservation sites needed to enhance protection and facilitate management of rare species at Fort Eustis (Figure 4-1). The proposed footprint is near the North Warwick River Seep conservation site in the northeastern portion of the cantonment area.

4.1.7.1.4 Wetlands

Wetlands associated with the Warwick River and its tributaries occur down slope of the proposed RCI housing areas (Figure 4-1). No wetlands occur within the proposed project footprint, but wetlands receive storm water runoff from impervious surfaces around housing areas.



Fort Eustis Conservation Areas

Figure 4-1

Source: USATCFE-CB, 1998; VDCR, 1997; USATCFE-CB, 1995.

4.1.7.2 Consequences

4.1.7.2.1 Proposed action

Vegetation. Short- and long-term direct minor adverse effects on vegetation would be expected. Vegetation in undeveloped portions of the proposed housing areas would be removed for the construction of new homes. Herbaceous vegetation exists on most of the affected undeveloped land, and some tree cover would be disturbed, principally on the area of the proposed footprint near the existing Antwerp Village. Existing landscaping in current housing areas could also be damaged or removed by demolition and construction activities. In the long term, new vegetative cover would be expected to establish itself or be planted near the new houses and community structures.

Wildlife. Short- and long-term direct minor adverse effects on common wildlife species in undeveloped portions of the proposed footprint would be expected. Some terrestrial animals could be displaced or destroyed when areas are cleared for new homes. The habitats of some woodland species could be reduced permanently, but the small areas affected would not be expected to cause population-level effects to the species. No effects would be expected on aquatic species. Negligible adverse effects on wildlife would be expected in existing developed housing areas because these areas provide mostly marginal wildlife habitat supporting only species habituated to human disturbances. In the long term, the habitat provided by new housing would be very similar to that currently available to these species.

Sensitive species. No effects would be expected. A 100-foot buffer will be maintained between construction areas and the North Warwick River Seep conservation site. The proposed action would not be expected to affect the South Warwick River Seep conservation site, which lies at some distance from the proposed footprint.

Wetlands. Short-term indirect negligible adverse effects on wetlands would be expected. The proposed RCI footprint is adjacent to the Warwick River and its tributaries in many places. Storm water runoff from construction sites could affect wetlands, but the effects would be negligible because a 100-foot buffer area will be maintained between areas disturbed by construction and wetlands at all times. See Section 4.1.6.2.1 for a discussion of the effects of construction on hydrology.

4.1.7.2.2 No action alternative

No effects on biological resources would be expected.

4.1.8 CULTURAL RESOURCES

4.1.8.1 Affected environment

4.1.8.1.1 Prehistoric and historic background

The Fort Eustis Integrated Cultural Resources Management Plan (ICRMP) (Engineering & Environment, Inc., 1999) can be consulted for a detailed description of the prehistoric and historic background of the project area.

4.1.8.1.2 Status of cultural resource inventories and Section 106 consultations

A comprehensive inventory of the cultural resources at Fort Eustis was completed in 1989 (MAAR Associates, Inc., 1989, cited in USATCFE, 1999). Capehart era housing is located within the proposed footprint (Hipps, Phyllis, personal communication, 2002). The Army and the Advisory Council on Historic Preservation (ACHP) signed a Program Comment on May 31, 2002 regarding Capehart-Wherry era (1949–1962) housing and it became effective on June 7, 2002 (ACHP, 2002). The entire national inventory of Capehart-Wherry era housing is considered eligible for the NRHP, and the Program Comment outlines the treatment measures. A subsequent memorandum from the Army, Assistant Chief of Staff for Installation Management, stated that "Garrison Commanders (may) immediately proceed with all management actions without any further Section 106 consultation or notification for the entire category of properties, associated structures, and landscape features" (Van Antwerp, 2002). The Capehart-Wherry Neighborhood Design Guidelines have been fully reviewed and considered in planning RCI actions that affect Capehart-Wherry era housing, associated structures, and landscape features. The mitigation actions are to be centrally funded and executed by the US Army Environmental Center on a national scale, rather than on an installation-specific basis.

Three archaeological sites identified as eligible or potentially eligible for listing on the NRHP are located within the footprint for new construction. Archaeological site locations are restricted information and are not identified in this document. The draft environmental baseline survey (EBS) for this RCI proposal identified several archaeological sites located within footprints. The site locations were taken from a March 20, 1997, map of archaeological sites at Fort Eustis. The sites were identified as potentially NRHP eligible, with Phase II investigation recommended. Potential NRHP-eligible archaeological sites were identified within the following footprints examined as part of the EBS: two sites within the proposed new construction area near Lee Boulevard at the Third Port, and one site within the footprint of new construction near St. Nazaire Village. Archaeological sites near but outside the footprint are one site outside the footprint but just to the east of the proposed new construction near Madison Avenue; one site just south of proposed redevelopment near St. Nazaire Village; and one site just south of new construction proposed near Antwerp Village.

4.1.8.1.3 Native American resources

Except for some archaeological sites, no known resources of Native American interest are located within the project area.

4.1.8.2 Consequences

4.1.8.2.1 Proposed action

Long-term direct minor adverse effects on cultural resources could occur as part of the proposed action. New construction could disturb known or as yet unidentified archaeological sites that are eligible or potentially eligible for listing on the NRHP.

The lease to FESMFH would include a clause prohibiting removal or disturbing, causing, or permitting to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, remains, or objects of antiquity. In the event that such items are discovered, FESMFH would be required to notify the installation commander or his or her designated representative immediately and protect the site and material from further disturbance until the installation commander or designated representative gives clearance to proceed. In addition, the Army would convey this property with encumbrances,

notices, and requirements obligating FESMFH to perform certain actions. These encumbrances would be in the form of covenants in the deed and would be binding on the transferee, as well as any subsequent successors or assigns. Negotiated terms of transfer or conveyance may result in requirements for the Development Entity to maintain the status quo of historic buildings or archaeological sites or may impose a requirement that the Virginia SHPO be consulted prior to any actions affecting such resources.

Completion of mitigation measures, negotiated in consultation with the Virginia SHPO and the ACHP, as required, would reduce any adverse effects on NRHP-eligible historic resources to a minor level. Mitigation measures for historic structures slated for demolition or alteration could include various levels of recordation, including scale photographs or drawings and reports describing the structures. Mitigation for archaeological sites could include archival research and data-recovery excavations and analyses of artifacts. All work would proceed in accordance with the Fort Eustis ICRMP.

4.1.8.2.2. No action alternative

No effects on cultural resources would be expected under the no action alternative.

4.1.9 SOCIOECONOMICS

4.1.9.1 Affected Environment

4.1.9.1.1 Economic development

This section describes the contribution of Fort Eustis to the economic and social environment of the region. The socioeconomic indicators used for this study include industry, employment, and population. These indicators characterize the region of influence (ROI).

An ROI is a geographic area selected as a basis on which the economic and social impacts of project alternatives are analyzed. The criteria used to determine the ROI are the geographic location of Fort Eustis, the residency distribution of Fort Eustis's military and civilian personnel, commuting distances and times, and the location of businesses providing goods and services to Fort Eustis, its personnel, and their dependents. Based on these criteria, the ROI for the social and economic environment is defined as James City County, York County, and the independent cities of Hampton, Newport News, Poquoson, and Williamsburg—all located in southeast Virginia.

The baseline year for socioeconomic data is 2000. It is the most recent year socioeconomic indicators for Fort Eustis are reasonably available. Where 2000 data are not available, the most recent data available are presented.

Employment. Table 4-2 shows ROI employment by industry sector. In 2000, employment in the ROI was almost exclusively nonagricultural. The primary sources of employment were services, government, retail trade, and manufacturing sectors. Together, these four industry sectors accounted for almost 84 percent of total employment in the ROI (USDOC-BEA, 2002a). Fort Eustis has approximately 5,000 active-duty military personnel and employs about 2,500 civilian personnel.

The ROI civilian labor force totaled 217,132 in 2000 (VEC, 2002). The unemployment rate for the ROI was 2.5 percent, slightly higher than Virginia's unemployment rate of 2.2 percent (VEC, 2002).

Table 4-2. Fort Eustis ROI Employment by Industry Sector in 2000.

Industry Sector	Number of Employees	Percentage of Total ROI Employment (%)
Agricultural Services, Forestry, Fishing	2,512	0.90
Mining	77	0.03
Construction	13,732	4.91
Manufacturing	34,132	12.21
Transportation and Public Utilities	5,866	2.10
Wholesale Trade	5,749	2.06
Retail Trade	49,829	17.83
Finance, Insurance, and Real Estate	15,442	5.52
Services	83,737	29.96
Government	67,083	24.00
Total Nonfarm Employment	279,383	99.96
Farm	117	0.04
Total Employment	279,500	100.00

Source: USDOC-BEA, 2002a.

Income. The per capita personal income (PCPI) in 2000 for each city and county in the ROI was below the state and national levels, with the exception of James City County (including Williamsburg) (Table 4-3). James City County and Williamsburg had the highest PCPI in the ROI at $36,746, and had the largest increase in PCPI (73.1 percent) between 1990 and 2000. Hampton had the lowest PCPI at $21,364, an increase of 28.6 percent since 1990. By comparison, the PCPI of Virginia was $31,120 in 2000, an increase of 51.6 percent since 1990. The PCPI for the United States was $29,469 in 2000, an increase of 50.6 percent since 1990.

4.1.9.1.2 Demographics

Table 4-4 lists the population trends in the ROI between 1990 and 2000, with comparative data for Virginia and the United States. Between 1990 and 2000, the ROI had a 12.6 percent increase in population, 1.8 percentage points lower than the increase for Virginia during the same time period. Within the ROI, James City County had the highest growth, with its population increasing by 38 percent between 1990 and 2000. Williamsburg had the lowest growth at 4.1 percent.

4.1.9.1.3 Housing

On-Post Family Housing. Fort Eustis has 952 housing units for military personnel with families. The housing subdivisions are described in Section 2.2.1.2. Demand for Fort Eustis's on-post family housing exceeds supply. On-post housing is fully occupied, though some units may be temporarily unavailable to allow maintenance to be completed between tenants. The occupancy rate for on-post

Table 4-3. Fort Eustis ROI Per Capita Personal Income.

Location	1990	2000	Percentage Change (%)
James City County[1]	$21,224	$36,746	73.1
York County[2]	$21,294	$28,927	35.8
City of Hampton	$16,610	$21,364	28.6
City of Newport News	$16,850	$22,849	35.6
Virginia	$20,527	$31,120	51.6
United States	$19,572	$29,469	50.6

[1] Includes the city of Williamsburg.
[2] Includes the city of Poquoson.
Source: USDOC-BEA, 2002b.

Table 4-4. Fort Eustis ROI Population Trends.

Area	1990[1]	2000[2]	Percentage Change, 1990–2000
James City County	34,859	48,102	38.0
York County	42,422	56,297	32.7
Hampton	133,793	146,437	9.5
Newport News	170,045	180,150	5.9
Poquoson	11,005	11,566	5.1
Williamsburg	11,530	11,998	4.1
ROI	403,654	454,550	12.6
Virginia	6,187,358	7,078,515	14.4
United States	248,709,873	281,421,906	13.2

[1] Source: USDOC-Census, 1990.
[2] Source: USDOC-Census, 2002.

housing is typically in excess of 98 percent (Earle, 2002). The waiting time for on-post family housing ranges from 1 month to 2 years, depending on rank and the number of bedrooms required (US Army, 2001). The longest wait is for enlisted and officer 4-bedroom housing units (US Army, 2001). Of the family housing units on Fort Eustis, there are no one-bedroom units, 64 two-bedroom units, 872 three-bedroom units, and 16 four-bedroom units (Earle, 2002).

Off-Post Housing. There were 181,081 housing units in the ROI in 2000, as shown in Table 4-5. Homeowner vacancy rates were low in the ROI. Rental vacancy rates ranged from a low of 2.4 percent in Poquoson to a high of 6.2 percent in Newport News. Homeowner vacancy rates and rental vacancy rates decreased or remained the same since 1990 in all counties and cities in the ROI (USDOC-Census, 2001).

Table 4-5. Fort Eustis ROI Off-Post Housing Quantity in 2000.

	James City County	York County	Hampton	Newport News	Poquoson	Williamsburg	ROI
Total Housing Units	20,772	20,701	57,311	74,117	4,300	3,880	181,081
Occupied Housing Units	19,003	20,000	53,887	69,686	4,166	3,619	170,361
Owner-occupied	14,640	15,157	31,570	36,513	3,503	1,602	102,985
Owner-occupied Rate	77.0%	75.8%	58.6%	52.4%	84.1%	44.3%	60.5%
Renter-occupied	4,363	4,843	22,317	33,173	663	2,017	67,376
Renter-occupied Rate	23.0%	24.2%	41.4%	47.6%	15.9%	55.7%	39.5%
Vacant Housing Units	1,769	701	3,424	4,431	134	261	10,720
Homeowner Vacancy Rate	2.3%	1.3%	2.0%	1.9%	1.0%	2.1%	N/A
Rental Vacancy Rate	11.2%	2.7%	5.6%	6.2%	2.4%	3.9%	N/A

N/A = not available.
Source: US DOC-Census, 2001.

There are not enough housing units on the installation to house all military personnel assigned to Fort Eustis and their dependents. For military personnel who must live off-post because on-post housing is unavailable, or for those who choose to live off-post, the Army Community Service Office and the Family Housing Office provide assistance with finding off-post housing.

Uniformed personnel living off-post are given a basic allowance for housing (BAH). BAH is listed on a soldier's paystub as an entitlement, or allotment, and is nontaxable income for paying rent or a mortgage. (Table 4-6 lists BAH by rank for 2001 for Fort Eustis.) However, current DoD policy does not mandate that BAH meet all housing costs for uniformed personnel and their families. If necessary, each soldier is expected to pay out-of-pocket expenses to meet additional housing costs, such as utilities.

Table 4-7 lists rental rates and housing costs for off-post housing in the ROI. A comparison of BAH in Table 4-6 with the cost of housing in Table 4-7 shows that military personnel living off-post, especially enlisted personnel with dependents and a need for a home with several bedrooms, could have housing costs greater than their BAH.

4.1.9.1.4 Quality of life

Law enforcement services. Security at Fort Eustis is provided through the Provost Marshal's Office (PMO) and the Military Police (MP). The MP and PMO respond to law enforcement emergencies occurring on Fort Eustis, including the housing areas. The MP enforce laws, regulations, and directives; administer the physical security programs, investigations, crime prevention program, and AWOL apprehension; and act as a liaison with civil law enforcement agencies.

Fire protection services. The Fort Eustis/Fort Story Fire and Emergency Services Division provides 24-hour fire and rescue service for the installation (including the housing areas) and also responds to

Table 4-6. Fort Eustis BAH Rate for 2001.

Pay Grade	BAH per Month
E-1 through E-4	$695
E-5	$740
E-6	$822
E-7	$871
E-8	$925
E-9	$997
W-1	$823
W-2	$893
W-3	$959
W-4	$1,012
W-5	$1,073
O-1	$747
O-2	$818
O-3	$956
O-4	$1,099
O-5	$1,198
O-6	$1,208
O-7 through O-9	$1,222

Note: E = Enlisted; W = Warrant Officer; O = Officer.
Source: US Army, 2001.

Table 4-7. Profile of Typical Off-Post Housing in the Fort Eustis Area.

	Bedrooms	Baths	Square Feet	Rent	Deposit	Purchase
Apartment	1	1	700	$475	$200	N/A
Apartment	2	1.5	950	$575	$200	N/A
Apartment	3	2	1,100	$775	$200	N/A
Townhouse	2	1.5	1,000	$650	$200	N/A
Townhouse	3	2	1,200	$700	$700	$75,000
Condominium	2	2	1,100	$700	$700	$80,000
House	3	2	1,600	$1,000	$1,000	$150,000
House	4	2.5	2,100	$1,250	$1,250	$180,000

N/A = Not available.
Source: US Army, 2001.

hazardous materials emergencies (USATCFE-DPW, 2002). Fort Eustis has two fire stations. The Fire and Emergency Services Division also educates the on-post community about fire prevention practices.

Schools. The U.S. Department of Education provides federal impact aid to school districts that have federal lands within their jurisdiction. This federal impact aid is authorized under Public Law 103-382 as payment in lieu of taxes that would have been paid if the land were not held by the federal government. School districts receive federal funding for each student whose parent or parents live or work on federal property. The amount of federal school aid a school district receives depends on the number of "federal" students the district supports in relation to the total district student population. Schools receive more funding for those students whose parents both live and work on federal property. Congressional appropriations for the program show that total funding varies year by year, but in general funding has ranged from $200 to $2,000 per pupil.

There are no schools on Fort Eustis. Children residing on the installation, as well as the children of military personnel living off-post, attend a public or private school within the ROI. The school districts in the ROI (James City County-Williamsburg School District, York County School District, Hampton City Public Schools, Newport News City School District, and Poquoson City School District) receive federal funding for any Fort Eustis students attending their schools. The majority of the children living on-post attend the Newport News City School District.

There is a plan to construct an elementary school on Fort Eustis. The need for the new school was identified by the city of Newport News because of an expected 10 percent growth in the number of school-age children over the next few years (USACE, Norfolk District, and The Information Broker, Inc., 2001). The growth is expected to be concentrated in the northwestern, more suburban area of Newport News, adjacent to Fort Eustis. The new elementary school would reduce overall crowding at Newport News elementary schools and reduce transportation time for students living on Fort Eustis. The school would have a capacity of 600 students and would require about 28 teachers and 24 administrative personnel. It is estimated that about 500 students would enroll at the school when it opens (Martin, personal communication, 2002). The school is scheduled to be completed in Fall 2003 (USACE, Norfolk District, and The Information Broker, Inc., 2001). Ownership of the land would remain with Fort Eustis, but the school would be constructed and operated by the city of Newport News under a leasing agreement with Fort Eustis. Even though the school would be located on federal property, it would continue to receive the maximum amount of federal impact aid per student since the school would be part of the Newport News public school district (Martin, personal communication, 2002).

Other Quality of Life Issues. Medical care, post-secondary education, shops and services, family support, and programs for the homeless are not addressed in this EA, because these resources would not be affected whether the proposed action or the no action alternative is implemented.

4.1.9.1.5 Environmental justice

On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The EO is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify potential disproportionately high and adverse impacts from proposed actions and to identify alternatives that might mitigate these impacts. Data from the U.S. Department of Commerce 2000 Census of Population and Housing were used in the environmental justice analysis presented here. Minority populations included in the census are identified as Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and other Pacific Islander; Hispanic; of two or more races; and other. Poverty status, used in this EA to define low-income status, is reported as the number of persons with income below poverty level. The 2000 Census defines

the poverty level as $8,794 of annual income, or less, for an individual, and $17,603 of annual income, or less, for a family of four.

The ROI has a slightly higher percentage of minority residents than Virginia and the United States, as shown in Table 4-8. In 2000, 73.5 percent of the ROI population was white and 20.9 percent was black. All other racial groups combined accounted for approximately 5.6 percent of the population, while 2.5 percent were of Hispanic origin. (Persons of Hispanic origin may be of any race.) In the state of Virginia, 72.3 percent of the population was white, 19.6 percent was black, 8.1 percent was of another minority racial group, and 4.7 percent was of Hispanic origin. For the United States, 75.1 percent of the population was white, 12.3 percent was black, and 12.5 percent was of another minority racial group. Approximately 12.5 percent of the U.S. population was Hispanic.

The Census Bureau bases the poverty status of families and individuals on 48 threshold variables, including income, family size, number of family members under the age of 18 and over 65 years of age, and amount spent on food. In 1997, 12 percent of the ROI residents were classified as living in poverty, higher than Virginia's poverty rate but lower than the rate for the United States (Table 4-8).

Table 4-8. Race, Ethnicity, and Poverty Status for the Fort Eustis ROI, Virginia, and the United States in 2000[1].

	ROI	Virginia	United States
White	73.5%	72.3%	75.1%
Black or African American	20.9%	19.6%	12.3%
American Indian and Alaska Native	0.3%	0.3%	0.9%
Asian	2.5%	3.7%	3.6%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%
Other	0.9%	2.0%	5.5%
Two or More Races	1.9%	2.0%	2.4%
Hispanic or Latino[2]	2.5%	4.7%	12.5%
Living in Poverty[3]	12.0%	11.6%	13.3%

[1] Source: USDOC-Census, 2002.
[2] Persons of Hispanic origin may be of any race.
[3] Percentage of persons living in poverty is for 1997.

4.1.9.1.6 Protection of children

EO 13045, *Protection of Children from Environmental Health and Safety Risks*, requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children.

Historically, children have been present at Fort Eustis as residents and visitors (e.g., family housing, users of recreational facilities). The Army has taken precautions for their safety by a number of means, including, but not limited to, the use of fencing, limitations on access to certain areas, and the provision

of adult supervision. A curfew is enforced for children on Fort Eustis. Children under the age of 16 must be inside between the hours of 9 p.m. and 6 a.m., and children ages 16 to 17 years must be inside between 1 a.m. and 5 a.m. unless accompanied by a parent, guardian, or other adult who has care, custody, or control of the minor (USATCFE, 2002).

As stated in Section 4.1.12, previous investigations identified hazardous substances (asbestos-containing materials [ACM], lead-based paint [LBP], and possibly pesticides) in many of the housing units on Fort Eustis. These materials were widely used for many years in the building products industry and in housing maintenance. It has been determined, however, that their presence in the housing units does not constitute a health hazard under normal circumstances and the materials are being removed or encapsulated as units are renovated.

4.1.9.2 Consequences

4.1.9.2.1 Proposed action

Methodology. The economic effects of implementing the proposed action are estimated using the Economic Impact Forecast System (EIFS) model, a computer-based economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment represent the direct effects of the action. Based on the input data and calculated multipliers, the model estimates ROI changes in sales volume, income, employment, and population, accounting for the direct and indirect effects of the action.

Because the funding for RCI at Forts Eustis, Story, and Monroe was allocated as a combined total dollar amount, the EIFS model was run on the combined ROIs of Fort Eustis, Fort Story, and Fort Monroe (i.e., James City County, York County, and the independent cities of Hampton, Newport News, Poquoson, and Williamsburg for Fort Eustis; the independent cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach for Fort Story; and York County and the independent cities of Hampton, Newport News, Norfolk, and Poquoson for Fort Monroe). The economic effect of RCI on the combined Forts Eustis, Story, and Monroe ROI is presented in Table 4-9. Appendix D describes the EIFS model in more detail and presents the model input and output tables.

Table 4-9. EIFS Model Output for the Proposed RCI Action at Fort Eustis, Fort Story, and Fort Monroe.

Indicator	Projected Change	Percentage Change	RTV Range
Direct Sales Volume	$19,422,340		
Total Sales Volume	$59,820,800	0.19	-7.07% to 10.94%
Direct Income	$5,256,453		
Total Income	$16,189,880	0.05	-5.77% to 10.75%
Direct Employment	128		
Total Employment	395	0.05	-3.15% to 2.94%
Local Population	0	0.00	-0.77% to 1.83%

For the purpose of this analysis, a change in sales volume, income, employment, or population is considered significant if it falls outside the normal range of ROI economic variation. To determine historical variability, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. This analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The historical extremes for the ROI become the thresholds of significance (the RTVs) for social and economic change. If the estimated effect of an action falls above the positive RTV or below the negative RTV, it is considered significant.

The model requires the following input data: the names of the counties composing the ROI, the change in local procurement (sales volume) due to the action, the number of civilian and military personnel affected by the scenario, and their salaries. The model also requires an estimate of the number of civilians expected to relocate. For the preferred alternative, the change in sales procurement would be the estimated cost of demolishing old housing, building new housing, revitalizing existing housing, and building supporting facilities (such as roads and community centers) on Forts Eustis, Story, and Monroe.

Economic development. Short-term direct and indirect minor beneficial effects would be expected. In the short-term, the expenditures and employment associated with construction of family housing on Forts Eustis, Story, and Monroe would increase sales volume, employment, and income in the ROI, as was determined from the EIFS model (Table 4-9). The economic benefits would be temporary, lasting only for the duration of construction. These changes in sales volume, employment, and income would fall within historical fluctuations and be considered minor.

Population. No effects would be expected. Implementation of the proposed action would not change the ROI population.

Housing. Long-term direct moderate beneficial effects would be expected. Because of the poor condition of the existing housing and the lack of 3- and 4-bedroom units on the post, some Army families assigned to the installation seek housing off-post. Rent in the housing market in the surrounding region can exceed a military family's BAH. Implementing the RCI program at Fort Eustis would eliminate the deficit in 3- and 4-bedroom units and provide quality, affordable housing to Army personnel assigned there.

Because the total number of housing units on-post would decrease under RCI (from 952 units to 897 units), the implementation of the RCI program would not adversely affect the local housing market.

Quality of life. Long-term direct major beneficial effects on quality of life would be expected. Long-term beneficial effects would occur through the improvement of on-post family housing. The availability of affordable, quality family housing is a key facet of quality of life for soldiers and their families. The proposed action would provide new housing units on-post for military personnel and their dependents and would improve the quality and aesthetic appeal of the existing housing through revitalization. This would allow military families to have quality housing that fits their needs.

Another quality of life concern for military families was that, under the RCI, they could lose their eligibility for the free or reduced-price lunch program for their children. Certain federal aid programs, such as free and reduced-price lunches and Women, Infants, and Children (WIC), are based on income level. If the proposed action were implemented, soldiers living on-post would receive a BAH (which appears as an entitlement, or allotment, on their paystub as nontaxable income) that would be paid as rent to the development entity. A soldier's total income would appear to be higher, while eligibility for the programs is based on taxable and nontaxable income. With the apparent "increase" in income under the RCI, some families might no longer be eligible for free and reduced-price lunches or WIC, which would

reduce their disposable income, affecting their quality of life. However, DoD and the Department of Agriculture (which oversees the lunch program and WIC) are aware of the potential problem and are working on a solution so that no adverse effect on quality of life would occur.

Schools. No adverse effects would be expected. Students would continue to attend off-post schools or would attend the new on-post elementary school after it is completed in 2003. Therefore, federal impact aid received by local school districts would not be reduced. If the number of children living on-post increases, however, federal impact aid would increase because schools receive the maximum amount of aid per student for children who live on-post and attend an off-post school. A potential beneficial effect exists, therefore, but until the CDMP is finalized, it would not be known how many school-age children would be moving from off-post to on-post schools.

Law enforcement and fire protection. No effects on law enforcement or fire protection services would be expected. Although the housing units would be sold to the developer, the land on which the buildings stand would only be leased to the developer (i.e., the land would continue to be federal government property). Therefore, Fort Eustis would retain exclusive federal jurisdiction. The MP and the Fort Eustis/Fort Story Fire and Emergency Services Division would still respond to emergencies in the Fort Eustis housing areas. If the RCI were implemented, the Fort Eustis/Fort Story Fire and Emergency Services Division would have sufficient personnel and equipment to maintain required emergency response times (Mittelmaier, personal communication, 2003).

Environmental justice. No effects would be expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of the proposed action.

Protection of children. Short-term indirect minor adverse and long-term direct minor beneficial effects on the protection of children would be expected. In the short term, because construction sites can be enticing to children, construction activity could be an increased safety risk. During construction, safety measures stated in 29 CFR Part 1926, Safety and Health Regulations for Construction, and AR 385-10, Army Safety Program, would be followed to protect the health and safety of residents on Fort Eustis, as well as the health and safety of construction workers. To protect health and safety, FESMFH would employ a full-time Health and Safety Officer. "No Trespassing" signs would be placed around construction sites to deter children from playing in these areas, and construction vehicles and equipment would be secured when not in use. Where possible, high visibility fencing would be erected around construction sites. In addition, FESMFH may employ nighttime security personnel, and conduct neighborhood awareness meetings, explaining hazards and how to avoid them.

Long-term beneficial effects on children would be expected because of reduced exposure to hazardous materials. Hazardous materials (including ACM, LBP, and possibly pesticides) identified in Fort Eustis housing units would be abated through removal or encapsulation during renovation or demolition activities. New construction would not use building products containing hazardous materials. These actions would eliminate children's exposure to these hazardous materials in on-post family housing.

4.1.9.2.2 No action alternative

Economic development and demographics. No effects would be expected. There would be no change in sales volume or employment in the ROI and no change in population from the implementation of the no action alternative.

Housing and quality of life. Long-term indirect moderate adverse effects would be expected. Continuation of family housing programs as they are at present would perpetuate deficiencies in quality of life for many soldiers and their dependents. Availability of affordable, quality family housing is a key function of quality of life and is often given high priority by soldiers and their families. The Army would continue to perform regular maintenance on existing housing, as well as some renovation and demolition, but it would be on a constrained budget over approximately 30 years, compared with the 10-year period under the proposed action. Over the 30 years, some housing units would deteriorate to the point of being unsuitable for living. This would further decrease the inventory of family housing on Fort Eustis, forcing military employees and their families to find housing off-post, which could strain the ROI housing market (homeowner and rental vacancy rates in the ROI are already low) and possibly the budgets of the families. Depending on the person's rank and number of dependents, he or she may have to pay more than the BAH for off-post housing with a sufficient number of bedrooms.

Environmental justice. No effects would be expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of implementing the no action alternative.

Protection of children. Long-term indirect minor adverse effects on the protection of children would be expected. Under current conditions, the hazardous materials identified in on-post housing units are not health hazards because they have been contained or removed. But as homes deteriorate, the risk of children being exposed to hazardous materials (for example, chipping LBP or ACM from cracked asbestos tiles) would increase. Section 4.1.12 provides further information on the types of hazardous materials identified in Fort Eustis housing units.

4.1.10 TRANSPORTATION

4.1.10.1 Affected Environment

4.1.10.1.1 Roadways and traffic

On-post roads. The only direct access to the post is by State Route 105, which becomes Washington Boulevard, a widely divided four-lane roadway, at the main entrance to Fort Eustis. A network of secondary and tertiary roads extends from Washington Boulevard and provides access to the cantonment area, the Third Port, community facilities, commercial buildings, and other parts of the installation. Access streets to the family housing areas are described in Section 2.2.1.2.

A second access road is planned for construction to reduce congestion at the Main Gate, facilitate mobilization, and provide a more direct route to and from the elementary school to be constructed on the installation (USACE, 2000). The elementary school is proposed to be built along Madison Avenue south of the intersection with Jefferson Avenue (USACE and The Information Broker, Inc., 2001). The preferred alignment of the second access road would extend it from Madison Avenue at its intersection with Sternberg Street across the Warwick River into Newport News. Additional housing is to be constructed as part of Inchon Village at the intersection of Madison Avenue and Sternberg Street, as well as along Madison Avenue north of the intersection. Based on current traffic conditions, it is estimated that between 12,000 and 15,000 vehicles per day would use the second access road. The time line for construction of the second access road has not been established.

Traffic. The existing road network is able to serve the needs and mission of the installation, although minor traffic problems do occur. Because there is only one entrance/exit at Fort Eustis, traffic congestion is high at shift changes (SAIC, 1996).

4.1.10.1.2 Public transportation

Hampton Roads Transit serves Fort Eustis with bus lines 106/107 and 113 to Hines Circle on Washington Boulevard (Hampton Roads Transit, 2003). Installation residents rely on personally owned vehicles, bicycles, or walking to access facilities and services on the post.

4.1.10.2 Consequences

4.1.10.2.1 Proposed action

Short-term direct minor adverse and long-term direct minor beneficial effects on traffic would be expected. Minor wear and tear on installation roads would increase due to use of the roads by construction vehicles. During the construction, demolition, and renovation phases, traffic congestion could occur, particularly during rush hours as vehicles enter and exit Fort Eustis or as construction and demolition debris from the project sites is transported off the installation. FESMFH, however, plans to schedule construction traffic to and from the construction areas during nonpeak hours to the extent possible, and would study the possibility of creating construction entrances directly to off-post roads. Details of the CDMP are provided in Appendix A. Traffic restrictions to accommodate utility construction and installation would be expected and these could create additional short-term traffic delays.

Long-term direct moderate beneficial effects on roads and traffic would be expected through implementation of the proposed development plan. Road improvements are planned for the areas where the existing Inchon, Cherbourge, LeHavre, Marseilles, and Antwerp Villages are located. However, no major changes in road layouts or new roads serving the housing areas are planned by FESMFH, so general traffic patterns on the installation would not be expected to be noticeably affected by the proposed action. Some traffic would be alleviated by the construction of neighborhood centers with convenience stores and swimming pools near the housing areas, so residents would be able to reach the facilities on foot instead of by car.

The second access road planned to be constructed by the Army would provide a direct route off the installation from the new North Village, to be constructed on the site of Inchon Village, as well as a route for residents of the new South Village to leave the installation without driving to the existing gate. The new road would be expected to alleviate traffic congestion at the existing gate and to change on-post traffic patterns somewhat. The second access road is further discussed in section 4.1.13, Cumulative Effects.

4.1.10.2.2 No action alternative

No effects would be expected.

4.1.11 UTILITIES

4.1.11.1 Affected Environment

4.1.11.1.1 Potable water supply

The city of Newport News supplies potable water to Fort Eustis from the Lee Hall Water Filtration Plant, approximately 1 mile from the installation (SAIC, 1996). Fort Eustis does not have a water contract with Newport News Water Works and thus there are no limitations on water use (Draper, personal communication, 1997, cited in USATCFE, 1999). In 1994, Fort Eustis consumed approximately 1.5 million gallons per day (MGD). There is no potable water treatment on the post. Water storage consists of one 200,000-gallon elevated tank and one 500,000-gallon elevated tank, all situated on the main post area. Potable water is delivered from the water filtration plant via a 50-year-old, 14-inch transmission line. The city of Newport News is currently upgrading the Lee Hall Treatment Plant. As part of the upgrade, the city is installing a new main, which will service Fort Eustis. The practical capacity of the existing transmission line is approximately 2.0 MGD. Four- to 14-inch mains and lateral lines of mostly cast and ductile iron run throughout the cantonment area. Asbestos-cement and polyvinyl chloride (PVC) piping is also found. Most of the system is 40 years old or more, though the potable water system throughout the installation, including in the family housing areas, has been improved over the past several years. Pressure throughout the system is typically about 60 pounds per square inch (USATCFE, 2001). Fire hydrants throughout the installation are in good condition because of recent reconditioning. In general, potable water systems in the family housing areas are in good condition.

4.1.11.1.2 Sewer

The existing sanitary wastewater collection system at Fort Eustis consists of gravity sewers that range in size from 6 to 30 inches and are mostly of terra-cotta with some concrete pipe. All force mains are composed of cast iron. Lift stations serve many areas of the installation, including the family housing areas (Christensen, personal communication, 2003; USATCFE, 2001). Wastewater is conveyed to an on-post pump station owned by Hampton Roads Sanitation District (HRSD), which pumps the wastewater to one of its wastewater treatment facilities. Average daily flow to HRSD is approximately 766,000 gallons per day (Daniel Wood, personal communication, 2002). The wastewater system is generally in good condition. Inflow and infiltration have been reduced recently, and more than 25,000 linear feet of sanitary sewer line have been rehabilitated since 1997.

4.1.11.1.3 Storm water

Approximately 32 miles of storm water infrastructure are available to collect and transport storm water runoff from the cantonment area into nearby waterways (SAIC, 1996, cited in Tetra Tech, 2002a). Thirty-one storm water outfalls drain residential, office, or classroom locations on the cantonment area.

4.1.11.1.4 Energy sources

Electricity. Dominion Virginia Power Company supplies 110-kilovolt, three-phase, 60-hertz electrical power to Fort Eustis. The transmission line, which Dominion Virginia Power owns to the Main Gate, can be energized through either one or two interconnecting ties between the Chesterfield Power Plant and the Yorktown Power Plant (SAIC, 1996). Electricity distribution on-post is mainly by overhead distribution lines that are owned by the installation. In 1995 Fort Eustis consumed 86.3 billion kilowatt-hours (KWH)

of electricity (SAIC, 1996). The main post area is adequately lighted along the major thoroughfares and family housing areas.

Natural gas. The Virginia Natural Gas Company began service to the main post of Fort Eustis in 1991, and it owns, operates, and maintains the steel and plastic distribution system. An 8-inch main enters the post. Natural gas is generally used for heating in family housing units. In 1995 natural gas consumption was 580,309 hundred cubic feet (CCF) (SAIC, 1995, cited in SAIC, 1996). The installation plans to convert all oil-fired heating facilities to natural gas. Currently, natural gas is the primary fuel source and No. 2 fuel is the backup (SAIC, 1996). The natural gas system on Fort Eustis is adequate to support all currently known requirements and sufficient for all future needs.

Storage tanks. Fuel oil storage tanks are considered under section 4.1.12.1, Hazardous and Toxic Substances.

4.1.11.1.5 Communications

Verizon provides telephone service to Fort Eustis through 95 incoming and 94 outgoing commercial trunk lines. The telephone exchange facilities are located in Building PO1387. The existing capacity comprises 5,500 lines in Building 1387 and 600 lines in Building 401, for a total of 6,100 lines. Fiber optic cables have been installed to most major buildings on Fort Eustis. Telephone service, however, is still provided by a single copper cable supplying 200 telephone lines to each building.

4.1.11.1.6 Solid waste

Solid waste generated at Fort Eustis is collected by a contractor and disposed of in off-post landfills (SAIC, 1996). Solid waste from the installation, including both municipal waste and construction debris, is taken to either the Bethel or Wolftrap landfills. The life expectancy of the Bethel landfill alone is more than 50 years when receiving a daily load of more than 2,000 tons (Charles Plott, personal communication, 2002). Fort Eustis disposed of 5,233 tons of solid waste in 2001. A recycling program (white ledger paper, colored ledger paper, computer paper, cardboard, wood pallets, newspaper, magazines, rubber tires, metals, aluminum cans, phone books, and glass) was initiated in 1990. It includes curbside pickup from residences.

4.1.11.2 Consequences

4.1.11.2.1 Proposed action

Short-term direct negligible adverse effects on potable water supply and electricity, long-term direct negligible effects with respect to storm water, and long-term direct moderate beneficial effects on utilities in general would be expected. Potable water and electric power use for construction activities, equipment, and personnel would be expected to increase temporarily during the construction phase of the proposed action. According to the proposed development plan, FESMFH would replace most of the existing water lines in the housing areas with new potable water distribution lines, and would complete further investigations to determine how best to dispose of existing lines and the feasibility of connecting to the existing system (J.A. Jones, 2003). If FESMFH was to replace existing water mains in the housing areas, they would first acquire a Construction Permit from the Virginia Department of Health persistent to their Waterworks Regulations, 12 VAC 5-590-190, *Permits.* An increase in impervious area (e.g., in the Inchon and Antwerp Village areas) would generate insignificant quantities of additional storm water flow, while a decrease in impervious land in other areas (e.g., Okinawa Village) would create a net decrease in

storm water runoff. The quantity of solid waste generated by construction and demolition at Fort Eustis (approximately 1,044 tons/month) (see Appendix E), not taking into consideration recycling and recapture, would not be expected to create a landfill capacity problem. FESMFH would recycle materials such as carpeting, furniture, appliances, tires, corrugated containerboard, bricks, concrete, and asphalt to the extent possible. Refrigerator coolant also would be recycled, along with windows, doors, and fixtures. Long-term moderate beneficial effects on utilities in general would be expected from housing renovations that would improve utility service at the units. No substantial additional demand on utility systems would be expected.

4.1.11.2.2 No action alternative

No effects would be expected.

4.1.12 HAZARDOUS AND TOXIC SUBSTANCES

4.1.12.1 Affected Environment

Construction and demolition activities require the use of some hazardous and toxic substances and generate some hazardous and toxic waste. Typically, construction and demolition activities involve the use or generation of petroleum, oils, lubricants, paints, and solvents, and the special hazards discussed below. The use and disposal of hazardous and toxic substances are regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), and the Toxic Substances Control Act (TSCA). FESMFH would be required to comply with all applicable requirements of these laws and the Fort Eustis TCFE Regulation 200-6, *Environmental Management*, including all procedures for hazardous and toxic materials storage, handling, and disposal.

To identify areas where the storage, release, or disposal of hazardous substances or petroleum products or their derivatives may have occurred, the Army, through contractor support, prepared an EBS of the areas at Fort Eustis considered for RCI project development. The EBS also identified any existing non-CERCLA-related environmental or safety issues (e.g., ACM and LBP) that would limit or preclude the use of the property for RCI actions. Detailed information on hazardous waste storage, handling, and disposal facilities at Fort Eustis is available in the draft EBS (Tetra Tech, 2002a).

According to DPW, the only heating oil tank supporting family housing is located at one of the farmhouses (Building 420) (DPW, 2002, cited in Tetra Tech, 2002a). Current tank inventory records also indicate that heating oil tanks are located at the three remaining farmhouses and all guest cottages.

Special hazards that could pose risks for the family housing areas are discussed below.

Polychlorinated biphenyls (PCB). In October 2001 Fort Eustis completed a program of replacing all PCB and PCB-contaminated transformers with new transformers containing non-PCB dielectric fluid (ENRD, 2002, cited in Tetra Tech, 2002a). The replacement program also included remediation of leaking transformers. Fluorescent light fixtures containing PCB may be in some of the residences, typically in the kitchen areas.

Asbestos-containing materials. ACM have been removed from family housing during renovations, but ACM still remain in most housing (Tetra Tech, 2002a). Remaining ACM include air cell insulation on pipes and vinyl tile or sheet flooring and associated mastic. It is reported that air cell insulation was

removed from all mechanical rooms when housing units changed from oil heat to gas (1992–1994) and from the walls of kitchens and bathrooms that have been renovated. Air cell insulation, which contains 2 to 25 percent asbestos, remains in the ceilings and walls of areas other than kitchens and bathrooms. Other specific locations of ACM reported by the Directorate of Public Works (DPW) include the following: (1) tar paper on some of the roofs in Cherbourge Village, (2) a few lighting fixtures in LeHavre Village, (3) asbestos-containing tile covered with plywood and another layer of tile in Okinawa Village, (4) tar used to seal roof penetrations in New Port Village, and (5) transite (asbestos cement board) in some furnace closets in Antwerp Village. Remediation for ACM is regulated by USEPA and the Occupational Safety and Health Administration (OSHA).

Lead-based paint. Site-specific lead inspections are conducted by DPW-certified lead inspectors in conjunction with Fort Eustis renovation and demolition projects. Reportedly there is very little LBP remaining on the interior of family housing (DPW, 2002, cited in Tetra Tech, 2002a). Remaining LBP is confined to trim including doors, door frames, window frames and baseboards. Exterior wood surfaces painted with LBP include siding, window frames, and mechanical room doors, though the majority of exterior surfaces with LBP have been covered with metal or vinyl siding and trim. Under US Army Public Works Technical Bulletin 420-70-2 (*Installation Lead Hazard Management* [20 February 1997]), as major repairs/rehabilitation on the family housing units is performed, lead-contaminated paint on surfaces disturbed by the work would be abated.

Pesticides. Based on information provided by the DPW, the pesticide chlordane was used for many types of insect control at Fort Eustis from at least 1972 through 1982 (Tetra Tech, 2002a). Fort Eustis maintains at least 20 years of records regarding the use of chlordane. A 1984 Army monitoring program in quarters previously treated with chlordane revealed that air samples contained less than 4 micrograms of chlordane per cubic meter in and around the slab of the buildings sampled. Given these results, no further action was required.

Radon. According to DPW personnel, some early radon testing that was completed at Fort Eustis determined that radon was not a concern (Tetra Tech, 2002a). Newly constructed housing units and units converted to housing would need to be tested for radon (Christensen, Tim, personal communication, 2002).

Mold. Mold has been identified in some of the buildings, though no adverse health effects from mold exposure in the housing areas have been identified to date (Tetra Tech, 2002a).

4.1.12.2 Consequences

4.1.12.2.1 Proposed action

Long-term direct negligible beneficial effects would be expected. Before any demolition or construction begins, a Spill Contingency and Hazardous Waste Management Plan would be prepared. The plan would address storage, inspection, record keeping, personnel training, cleanup and disposal, and all other aspects of and activities related to hazardous materials. Furthermore, FESMFH would contact the Fort Eustis and Fort Story Departments in the event of a spill. These departments are the first responders. Once they evaluated the scope of the spill, cleanup and disposal would be the responsibility of FESMFH. All hazardous and toxic materials would be managed in accordance with federal and state laws and regulations, and TCFE Regulation (draft) 200-6, *Environmental Management*. All hazardous, non-hazardous, and universal waste would be disposed through the Fort Eustis and Fort Story Hazardous Waste Facilities. Surfaces potentially contaminated with LBP would be reevaluated by a certified risk

assessor before being disturbed and periodic visual monitoring of all positive lead based paint surfaces by the owner is recommended by HUD. These activities will become part of the Operation and Maintenance Program to be developed as part of the Community Development and Management Plan. Mercury in thermostats is contained within a small glass vial and the vials will be placed in a packaging material to prevent breakage in accordance with TCFE Regulation (draft) 200-6, *Environmental Management*. Only individuals trained in universal and hazardous waste management will perform these duties. No environmental or health effects resulting from the storage, handling, or disposal of regulated wastes would be expected. Implementation of the proposed action would reduce the quantity of hazardous and toxic materials in residential areas.

4.1.12.2.2 No action alternative

Long-term indirect minor adverse effects would be expected. Because of the extensive maintenance backlog and budget constraints, housing units containing special hazards such as LBP and ACM could deteriorate further and those substances could pose an increased risk to human health.

4.1.13 CUMULATIVE EFFECTS SUMMARY

Cumulative effects are defined by the CEQ in 40 CFR Part 1508.7 as the "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions."

The proposed action itself would create a cumulative effect of generating construction and demolition waste from three installations (Forts Eustis, Story, and Monroe) simultaneously, and all of the waste would have to be disposed of in area landfills. The solid waste expected to be generated by the proposed action at the three installations, however, would not be expected to pose a problem for area landfills. Recycling of materials that can be recycled would reduce the impact of the proposed action on landfill capacity.

Construction of a second access road and new elementary school during the time frame in which the new housing is being constructed would add to noise, dust, vehicle emission, and traffic problems. The second access road, however, would be expected to alleviate some traffic congestion on the installation, could be used by construction vehicles after for direct access to the construction areas, and would provide a direct route for housing residents to off-post areas.

The new elementary school to be constructed very close to the new North Village (near the site of Inchon Village) would reduce the transport of young children to off-post elementary schools. This would help alleviate some rush-hour traffic. Children from off-post, however, would be expected to attend this new school, so school traffic for young children would not be alleviated altogether. The second access road would be used for transport to and from the school, however, so traffic at the existing gate would not suffer. The new school would be a convenience for the children and their parents and could result in increased safety for the children.

A security fence is to be constructed at Fort Eustis for force protection purposes. The security fence would be constructed of brick and chain-link fence in residential areas. No sound barriers would be constructed as part of the project. The security fence in the vicinity of the gates and Commanding General's house would be made of black iron. A chain-link fence now exists along portions of the installation's border in the vicinity of family housing areas. It is expected that the new security fence

would help improve the aesthetic quality of the renovated family housing areas and would provide added security and safety for residents.

Privatization of the utilities at the installation could create cumulative effects. Utilities privatization, according to DoD, "is a method by which military installations can obtain safe, technologically current, and environmentally sound utility systems, at a relatively lower cost than they would under continued government ownership" (DoD, 2003). A utilities privatization effort conducted concurrently with housing privatization could benefit residents by providing updated service to them and by eliminating the additional groundbreaking and general disruption associated with new system installation. If utilities privatization is conducted before or after housing construction, residents of the housing areas would experience a long period of disruption from noise, traffic interruptions, and eyesores. Residents would experience an economic benefit from the utilities privatization, as intended by DoD, or they would experience a cost increase for utilities, depending upon the economic situation at the time of and following privatization. Neither the timing nor the economic, noise, or aesthetic cumulative impacts of the utilities privatization effort at Fort Eustis are clearly foreseeable at this time.

4.1.14 MITIGATION SUMMARY

Mitigation actions for the proposed Army RCI project have been incorporated into the CDMP. Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. Table 4-10 summarizes the proposed mitigation measures to be taken for each of the affected resources.

Table 4-10. Summary of Mitigation Measures.

Aesthetics and Visual Resources

- Revegetate housing areas with native vegetation.
- Place new utility lines underground.

Air Quality

- Spray water on work sites to reduce dust.
- Schedule construction traffic during nonpeak traffic hours.

Noise

- Use setbacks, berms, and plantings of natural vegetation to attenuate noise.
- Limit construction activities to daylight hours.

Geology and Soils

- Use appropriate and required BMPs (such as silt fences, strawbale dikes, and water bars) to reduce soil erosion and sedimentation.

Water Resources

- Incorporate storm water management structures in housing construction management, housing structures, and roads to prevent flooding and erosion; use low-impact development techniques to reduce runoff after construction and to maximize infiltration.
- Revegetate bare soil following construction activities.

Biological Resources

Vegetation:

- Limit disturbed areas to the housing footprint and a minimal amount of adjacent areas.
- Plant native vegetation near homes, in parks, and in open spaces.

Wildlife:

- Preserve existing native vegetation to act as buffers and wildlife corridors.
- Plant native vegetation to provide food and shelter for wildlife.

Sensitive Areas:

- Minimize disturbance to sensitive areas and maintain buffers around them and between them and housing areas.

Cultural Resources

- Maintain all historic units in accordance with the provisions of installation ICRMPs, which incorporate federal and state historic preservation standards.
- Avoid all recognized areas of archaeological interest.
- Include clauses in construction contracts with provisions suspending work until a mitigation determination is made in the event that archaeological artifacts are unearthed.

Socioeconomics and Protection of Children

- Secure construction vehicles and equipment when not in use.
- Place barriers and "No Trespassing" signs around construction sites where practicable.
- Avoid the use of building products containing hazardous materials.

Traffic and Transportation

- Limit construction vehicle entry and exit during peak traffic hours.

Utilities

- No mitigation is necessary.
- Mitigation for storm water runoff is discussed above under Water Resources.

Hazardous and Toxic Substances

- Evaluate, store, and dispose of hazardous materials used or removed during demolition, construction, and renovation in accordance with applicable regulations and a Spill Contingency and Hazardous Waste Management Plan.

4.2 FORT STORY

4.2.1 LAND USE

4.2.1.1 Affected Environment

4.2.1.1.1 Regional setting

Fort Story is located on Cape Henry at the confluence of the Atlantic Ocean and the Chesapeake Bay, south of the Delmarva Peninsula and just north of the city of Virginia Beach. It encompasses 1,452 acres of land at the eastern limits of the partly submerged section of the Atlantic Coastal Plain physiographic region.

4.2.1.1.2 Installation land use

Installation-wide land use. The cantonment area covers 430 acres and includes within it 88 acres for recreation and 9.5 acres for indoor training. The cantonment area also includes administrative land use, community facilities, housing units, medical facilities, service and storage buildings, historical use, and mixed uses. No land use compatibility problems are known to be associated with existing housing areas.

Coastal Zone Consistency. A consistency determination, in accordance with the VCP, has been prepared for the proposed action (Appendix B). A review of Virginia's rules of coastal zone management has determined that the proposed action is consistent with the long-term goals and policies of the VCP.

Future development on the installation. Major new construction on the installation is not expected. The only ongoing activity is continuous reinforcement of exposed shorelines.

4.2.1.1.3 Surrounding land use

The city of Virginia Beach is adjacent to the installation. No major expansion in the city is known to be planned for the near future.

4.2.1.2 Consequences

4.2.1.2.1 Proposed action

Long-term direct moderate beneficial effects[2] on installation land use would be expected. Existing housing land use areas would be used for the new residential development and small surrounding areas that are currently undeveloped would be developed as housing and related structures. Open areas, parks,

2 Throughout the discussions of consequences of the proposed action and no action alternatives, phrases such as "minor beneficial," "negligible adverse," and the like are used. The meanings of these terms are clarified below.

A "direct" effect is one caused by the action and occurring at the same time and place as the action.

An "indirect" effect is one caused by the action but which occurs later in time or farther removed in distance, but which is still reasonably foreseeable.

"Negligible," "minor," and "moderate" all refer to the intensity of effect. Unless otherwise stated, their use does not indicate a significant effect. Specifically, "negligible" indicates that the effect is at the lowest levels of detection. "Minor" indicates that the effect is slight, but detectable. "Moderate" indicates that the effect is readily apparent.

and neighborhood centers would be incorporated into the new housing, and when combined with the increase in housing units (from 163 to 253), this would improve the quality of the housing land use category on the installation. Road improvements and the modernization of the housing units under the RCI program would improve the overall quality of housing on the installation. Because the areas to be developed as housing are currently in use as housing or are adjacent to existing housing, no land use compatibility issues are foreseen.

4.2.1.2.2 No action alternative

No effects would be expected. No changes to land use designations or land use compatibility would occur under the no action alternative.

4.2.2 AESTHETICS AND VISUAL RESOURCES

4.2.2.1 Affected Environment

A general definition of aesthetics and visual resources is provided in Section 4.1.2. The housing areas on Fort Story, built predominantly in the late 1950s, are composed of buildings and structures that vary in size and style. Brick and wood siding construction and well-manicured lawns characterize the Capehart areas. The stand-alone units vary greatly in design and are more spacious than the Capehart areas.

Certain aesthetic elements contribute to the overall visual impression of Fort Story:

- Visually disorganized elements—including substations, exterior mechanical systems (heating, ventilating, and fuel storage, for example), dumpsters, storage yards, and maintenance yards—are often unscreened.
- Planting is scarce, and use of native vegetation is quite sparse.

4.2.2.2 Consequences

4.2.2.2.1 Proposed action

Short- and long-term direct minor adverse and long-term direct minor beneficial effects would be expected. During the construction and renovation phase of the proposed action, construction equipment would be a visual element. The construction of housing in undeveloped areas, particularly close to the shoreline, would permanently alter views of the ocean from other housing. Beneficial effects would be expected, however, within the housing areas from improvements to roads, the construction of a new neighborhood center, the incorporation of parks and green spaces, and the overall modernization of the housing structures. As a result of the RCI program, the overall aesthetic appeal of the housing areas would be expected to improve.

4.2.2.2.2 No action alternative

Long-term indirect minor adverse effects would be expected. Under the no action alternative, the Army would continue to be responsible for maintenance and renovation of existing housing, and new construction as necessary. Over time, however, housing would continue to deteriorate overall, and the visual and aesthetic resources on the installation would degrade further.

4.2.3 AIR QUALITY

4.2.3.1 Affected Environment

A background discussion of air quality control is provided in Section 4.1.3.1.

4.2.3.1.1 Regional air quality conditions

Fort Story is within the same air quality control region as Fort Eustis, and a background discussion of the regional air quality conditions is provided in Section 4.1.3.1.

4.2.3.1.2 Fort Story air emissions

Stationary air pollutant sources at Fort Story include small and large fuel-oil-fired boilers (all of which use No. 2 fuel oil). Table 4-11 shows emissions from stationary sources at Fort Story in 2002. Mobile sources of air pollutants at Fort Story include automobiles, helicopters, and heavy trucks. Fort Story has a Stationary Source Permit to Operate, issued by DEQ on April 8, 2003. Any new source would be reviewed to determine if a permit modification is necessary. Examples of new sources would be a stationary emergency generator, boiler plant, or maintenance facility.

Table 4-11. Annual Emissions Summary of Criteria Pollutants from Stationary Sources at Fort Story in 2002.

Abbreviation	Pollutant	Emissions (tons/year)
SO_2	Sulfur Dioxide	4.6
NO_x	Nitrogen Oxides	3.8
VOC	Volatile Organic Compounds	5.9
CO	Carbon Monoxide	1.3
PM	Particulate Matter	0.6

Source: Christensen, personal communication, 2003

4.2.3.2 Consequences

4.2.3.2.1 Proposed action

Short-term direct negligible adverse effects would be expected. Construction vehicles, including trucks and other heavy equipment, would emit minor amounts of nitrogen oxides, particulate matter, carbon monoxide, sulfur oxides, and VOCs, but not to a level that would cause the area to exceed the *de minimis* threshold limits for the respective pollutants. Dust from land clearing and construction would create minor and local problems, and FESMFH would use dust suppressant methods to minimize any such problems. Air emission calculations are provided in Appendix C.

4.2.3.2.2 No action alternative

No effects would be expected.

4.2.4 NOISE

Background information on noise is provided in Section 4.1.4.

4.2.4.1 Affected Environment

Noise at the installation originates from demolition, helicopters, and traffic. Fort Story has a self-imposed limit of 8 ounces net explosive weight for demolition activities, well below the previous limit of 18 ounces. When larger demolition activities need to be conducted, Range W-50, located 3 to 4 miles offshore and 5 to 6 miles from Virginia Beach, is used (USATCFS, 1999).

Fort Story has four helicopter landing zones. Two daytime operations usually take place each week, and aircraft approach the installation from the water at an altitude of 500 feet when crossing the beach. The VIP helicopter-landing zone is close to existing family housing. Even with several flights per day, the noise level is not considered excessive (USATCFS, 1999).

4.2.4.2 Consequences

4.2.4.2.1 Proposed action

Short-term direct minor adverse effects would be expected. Implementation of the proposed action would result in additional noise during construction, but construction activity would be confined to daytime hours during the normal workweek.

4.2.4.2.2 No action alternative

No effects would be expected.

4.2.5 GEOLOGY AND SOILS

4.2.5.1 Affected Environment

4.2.5.1.1 Geologic and topographic conditions

Geology. Bedrock in the Fort Story region is buried by deep layers of unconsolidated sedimentary deposits that dip toward the Atlantic Ocean. The uppermost sediment layer is approximately 900 to 1,100 feet (USGS, 1986).

The topographic relief of Fort Story is from flat to rolling. The elevation at the installation ranges from sea level to about 85 feet above MSL (USGS, 1986). Primary dunes (between the waterfront and Atlantic Avenue) and secondary dunes (southwest of Atlantic Avenue) average 25 feet in height, while a third line of dunes (between the first line of secondary dunes and wetlands on the installation) rises to about 85 feet above MSL.

Seismicity. The seismicity of the region is reviewed in Section 4.1.5.1. Fort Story is located in Earthquake Hazard Zone 1, which means there is slight probability of damage if an earthquake was to occur.

4.2.5.1.2 Soils

Many of the soils found in the proposed footprint are sandy coastal soils or upland soils. Many of the soils are limited for development by moderate to severe erodibility (Figure 4-2). The unstable seaward face of the dunes at the apex of Cape Henry cannot support vegetation. The beach at this location is directly exposed to northeast waves. To help combat erosion, eight stone breakwaters have been installed offshore of the eroding beach area have been installed to provide protection for approximately 5,500 linear feet of shoreline. Each breakwater, constructed using a 4-ton uniform armor stone, is 250 feet long and the breakwaters are spaced 350 feet apart (USATCFS, 1999).

4.2.5.1.3 Prime farmland

None of the soils series that occur in the existing housing areas or in the proposed RCI footprint are designated as prime or unique farmland soils. Therefore, a Farmland Conversion Impact Rating (Form AD-1006) of the project area is not warranted and no further action is required under the FPPA.

4.2.5.2 Consequences

4.2.5.2.1 Proposed action

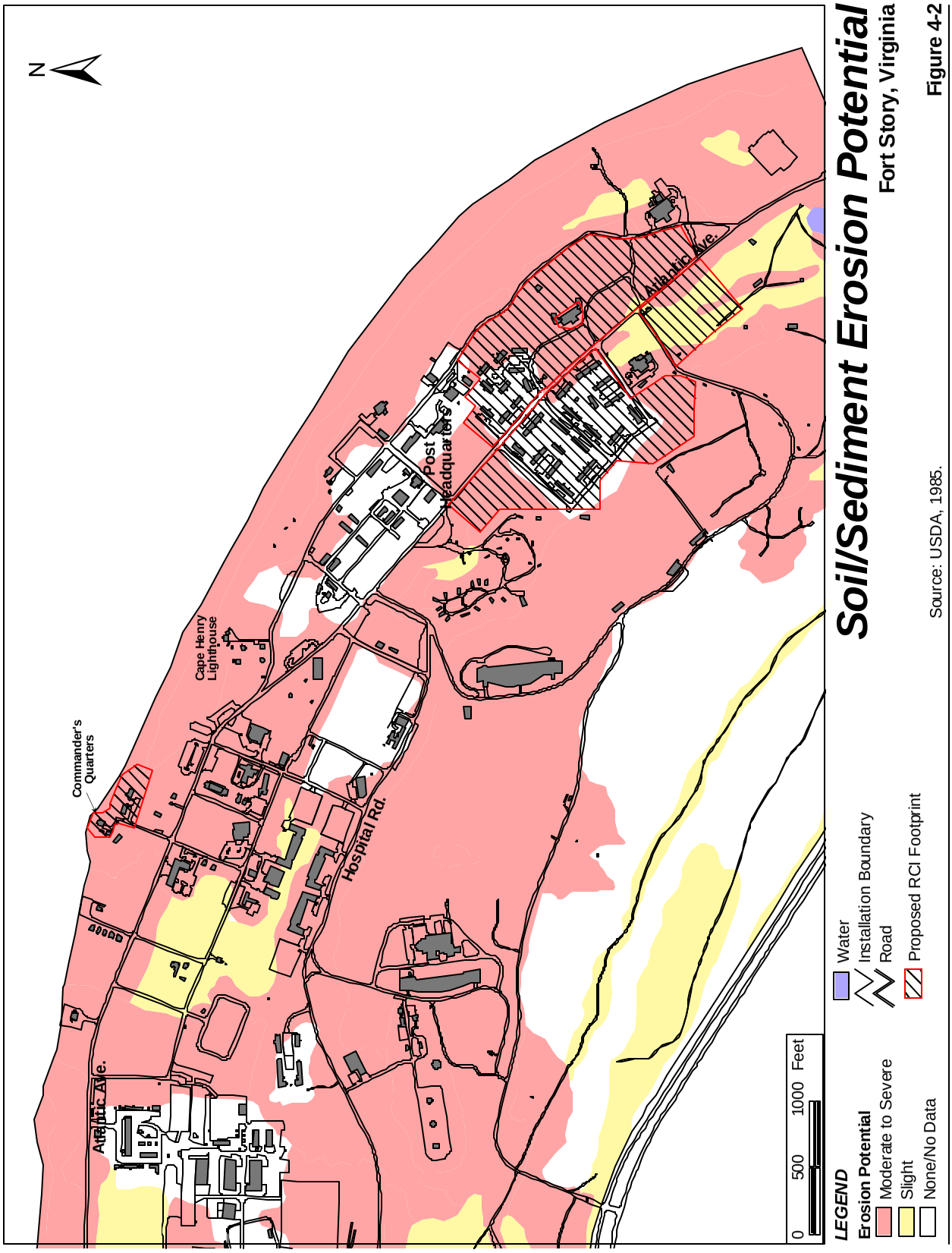
Geologic and topographic conditions. No effects would be expected.

Soils. Short-term direct minor adverse effects would be expected. Soil disturbance and vegetation removal during construction would be expected to lead to some soil erosion. FESMFH would adhere to state regulations regarding soil erosion control at construction sites. Recommended and required BMPs to reduce soil erosion include silt fences, diversion swales, riprap channels, water spreaders, temporary ground cover, and disturbing as little ground as possible. The FESMFH Soil and Erosion Control Plan would include the use of these and any other measures necessary to minimize soil erosion. FESMFH also would be required to incorporate within its project plan Sustainable Design and Development construction principles consistent with Army policy. These design principles, once implemented, would be expected to help reduce runoff and erosion after construction is completed. The relatively flat topography of the footprint area would limit the amount of soil erosion expected to occur both during and after construction and make soil erosion control somewhat easy to accomplish and control measures effective. The area to be affected by construction is separated from the beach by a vegetated area that would not be affected during construction. For the effects of erosion on water quality, see section 4.2.6, Water Resources.

Prime farmland. No effects would be expected.

4.2.5.2.2 No action

No effects would be expected.


N
Soil/Sediment Erosion Potential
Fort Story, Virginia
Figure 4-2
Source: USDA, 1985.
LEGEND
Erosion Potential
Moderate to Severe
Slight
None/No Data
Water
Installation Boundary
Road
Proposed RCI Footprint
0
500
1000 Feet
Atlantic Ave.
Commander's Quarters
Cape Henry Lighthouse
Hospital Rd.
Post Headquarters
Atlantic Ave.

4.2.6 WATER RESOURCES

4.2.6.1 Affected Environment

4.2.6.1.1 Surface water

No surface waters exist within the proposed footprint.

4.2.6.1.2 Groundwater

The water table ranges from 2.5 feet below the surface near the shore to more than 40 feet below the surface in high ridge areas. The average depth to groundwater is 10 feet (USACE, Norfolk District, 1996). Groundwater flows generally from the central sand ridge area northward toward the coastline and southward toward the wooded wetlands.

4.2.6.1.3 Floodplains

All of the proposed RCI footprint is above the 100-year floodplain. Some of the existing family housing units designated for demolition are subject to flooding (J.A. Jones, 2003) (Appendix A). Flooding occurs at Fort Story during thunderstorms, which occur in the region 37 times annually on average (USATCFS, 1999).

4.2.6.2 Consequences

4.2.6.2.1 Proposed action

Long-term direct negligible adverse and beneficial effects would be expected. The extent of impervious surface would increase slightly under the proposed action, and storm water volume could increase as a result. Infiltration into the generally sandy soils of the installation should prevent most overland flow and ponding. Adherence to the provisions of an Erosion and Sediment Control Plan, a SWPPP, and a General Construction Storm Water Permit, to be developed by FESMFH in accordance with federal and Virginia law and the Chesapeake Bay Preservation Act, would minimize runoff and water pollution caused by the proposed development. FESMFH would also comply with TCFE Regulation 200-6, *Environmental Management*, for the prevention of spills to minimize water quality impacts. The frequency of storm-driven flooding in houses would be expected to decrease after those units currently subject to flooding are removed.

4.2.6.2.2 No action alternative

No effects would be expected.

4.2.7 BIOLOGICAL RESOURCES

4.2.7.1 Affected Environment

4.2.7.1.1 Vegetation

Fort Story lies within the eastern limits of the Atlantic Coastal Plain physiographic region. The installation has 3.5 miles of sandy beaches along the Atlantic Ocean and Chesapeake Bay. Fort Story is a coastal

environment with maritime forests, wetlands, and shoreline. Much of the installation is covered by woody vegetation. The coastal sand dune areas are primarily vegetated with a mix of herbaceous and woody species (USATCFS, 1999).

Developed areas. There are developed areas of the installation that have been planted with various species of trees (e.g., Japanese black pines), shrubs (e.g., wax myrtle), and ground cover (e.g., juniper). Turf found within the developed portions of the installation is often a mixture of such grasses as Kentucky bluegrass (*Poa pratensis*), tall fescue (*Festuca elatior*), and domestic rye grass (*Secale cereale*) (USACE, Norfolk District, 1996).

Maritime forest. The southeastern portion of Fort Story is composed of approximately 507 acres of contiguous coastal maritime forest. The primary characteristic of this area is parallel vegetated sand dunes with interdunal wetlands. Species characteristic of these maritime forest areas include loblolly pine (*Pinus taeda*), various oaks (*Quercus* spp.), black gum (*Nyssa sylvatica*), sassafras (*Sassafras albidum*), blueberry (*Vaccinium* sp.), and greenbrier (*Smilax glauca*) (Stevenson, 1996).

Sand beaches/dune areas. The coastal ecosystem of Fort Story consists of 160 acres that lie adjacent to the Atlantic Ocean and the Chesapeake Bay. This area is noted for its sand beaches as well as its dunes. Species characteristic of this area include American beachgrass (*Ammophila breviligulata*), broomsedge (*Andropogon virginicus*), sea oats (*Uniola paniculata*), panic grasses (*Panicum* spp.), scrub live oak (*Quercus virginiana*), and persimmon (*Diospyros virginiana*) (USACE, Norfolk District, 1996).

4.2.7.1.2 Wildlife

A general survey of terrestrial wildlife species on Fort Story has not been conducted, though species have been identified in the Fort Story/Cape Henry region (USATCFS, 1999). Since Fort Story has many of the same habitat types that occur in the coastal plain of Southeastern Virginia, it is assumed that many of the same species are also found on the installation. The region is known to have a diverse fauna, with at least 30 species of mammals, approximately 140 species of birds, 15 reptiles, 9 amphibians, and numerous species of freshwater and marine fish.

4.2.7.1.3 Sensitive species

Vertebrates. A Natural Heritage zoological inventory of the installation was conducted in 1994–1995 by the Virginia Department of Conservation and Recreation, Division of Natural Heritage (USATCFS, 1999). No federal-listed threatened or endangered animal species were found on Fort Story. One federal species of concern (also listed by the state as endangered), the eastern big-eared bat (*Corynorhinus rafinesquii macrotis*), and six state watchlist species were recorded during the survey. No rare animals have been observed in or adjacent to the RCI footprint at Fort Story.

Plants. No federal- or state-listed plant species are known or expected to occur on Fort Story (USATCFS, 1999). However, nine plant species listed as rare in Virginia and seven plant species on the Virginia Plant Watchlist were found on Fort Story. All of these plants have been observed in areas outside the RCI footprint at Fort Story.

East Beach Dunes Conservation Site. Based on the findings of the 1994–1995 inventory of rare species and significant natural communities, The Division of Natural Heritage designated four conservation sites on Fort Story that best encompass the occurrences of rare species and heritage resources (USATCFS, 1999). Conservation sites are defined as areas that contain good or marginal occurrences of particular

vegetative community types or state rare species. In light of the designation of these conservation areas, Fort Story intends for the areas to remain parts of designated training areas, but intends to make an additional effort to minimize impacts occurring as a result of training. The East Beach Dunes Conservation Site is adjacent to one parcel of the proposed footprint, but the two areas are separated by a major road (Figure 4-3).

The east beach dunes area is a 70-acre site encompassing beach, dune, and maritime scrub/forest habitats along the Atlantic Ocean and the mouth of the Chesapeake Bay. Specifically, this site is located along the east entrance of Fort Story. Dominant species of the community include loblolly pine (*Pinus taeda*), live oak (*Quercus virginiana*), wild black cherry (*Prunus serotina*), wax myrtle (*Myrica cerifera*), and various vines and forbs.

4.2.7.1.5 Wetlands

There are approximately 270 acres of palustrine forested wetlands located on the installation. The dominant wetland feature on Fort Story is a 148-acre tract of palustrine forested bald cypress wetland located adjacent to the RCI footprint in the southeastern and south-central sections of the installation (USACE, Norfolk District, 1996).

Small patches of palustrine emergent and palustrine shrub-scrub wetlands are scattered in the cantonment area (Figure 4-3). Estuarine wetlands are located in the zone between the cantonment area and the Atlantic Ocean. There are no jurisdictional wetlands within the proposed RCI footprint.

4.2.7.2 Consequences

4.2.7.2.1 Proposed action

Short-term direct minor adverse effects on vegetation and wildlife would be expected. Trees, shrubs, and herbaceous plants in undeveloped portions of potential housing areas would be removed during construction. Existing landscaping in current housing areas also could be damaged or removed by demolition and construction activities. Some terrestrial species of wildlife could be displaced due to new construction. However, existing trees and shrubs would be preserved in all possible situations, and native plant materials would be incorporated whenever possible in new landscaping designs. No effects on sensitive species or wetlands would be expected.

4.2.7.2.2 No action alternative

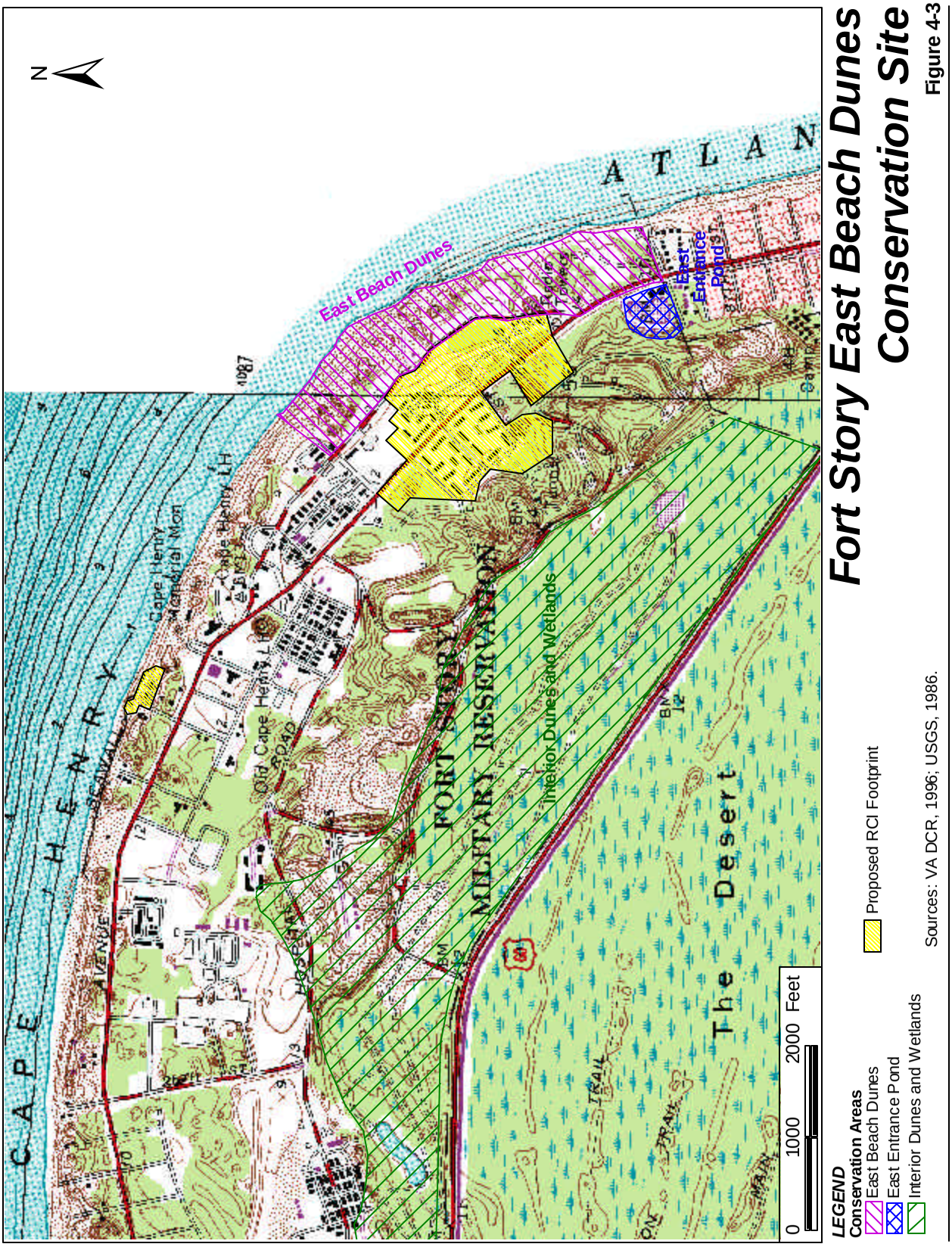
No effects to biological resources would be expected.

4.2.8 CULTURAL RESOURCES

4.2.8.1 Affected environment

4.2.8.1.1 Prehistoric and historic background

The Fort Story ICRMP (Engineering & Environment, Inc., 2001) can be consulted for a detailed description of the prehistoric and historic background for the project area.



Fort Story East Beach Dunes Conservation Site

Figure 4-3

4.2.8.1.2 Status of cultural resource inventories and Section 106 consultations

The Fort Story Historic District has been determined eligible for the NRHP because of its historic significance (Andrus, 2003; Smead, 2002). Almost the entire facility is within the boundaries of the eligible district (Figure 4-4) (Andrus, 2003). Two potentially NRHP-eligible historic structures, Building Nos. 214 (built ca. 1922 as a powder magazine) and 734 (built in 1917, and formerly a weather station), are within the proposed footprint. Building 317, a World War II-era battery built in 1943, while not part of the footprint, is entirely surrounded by it. Building 101, a battery built in 1942, is just east of and outside the footprint (Engineering & Environment, Inc., and Sadler & Whitehead Architects, 1999; Engineering & Environment, Inc., n.d.). Structures 406 and 410 are both magazines built in 1922 and are located just southwest of and outside the footprint boundary. Capehart housing units built in 1958 are also present at Fort Story.

An architectural survey was completed for Fort Story. The survey concluded that the installation contains a potentially eligible historic district with 57 contributing buildings and structures and one contributing site, the gun emplacement for Buildings 216 and 217 (McCall, Steve, personal communication, 2002). Building 300 is also potentially eligible for listing on the NRHP. This structure was built in 1918 as the post headquarters and still serves that purpose (USATCFS, 1999). It is west of and outside the proposed footprint.

A comprehensive archaeological inventory of the cultural resources at Fort Story was completed in 1989 (MAAR Associates, Inc., 1989, in USATCFS, 1999). Overall, the survey indicated severe disturbance due to both shoreline erosion and military activities, and no in situ archaeological resources were identified. If sites are encountered during construction, the post commander would be notified and proper investigation completed before resumption of construction activities (J.A. Jones, 2003).

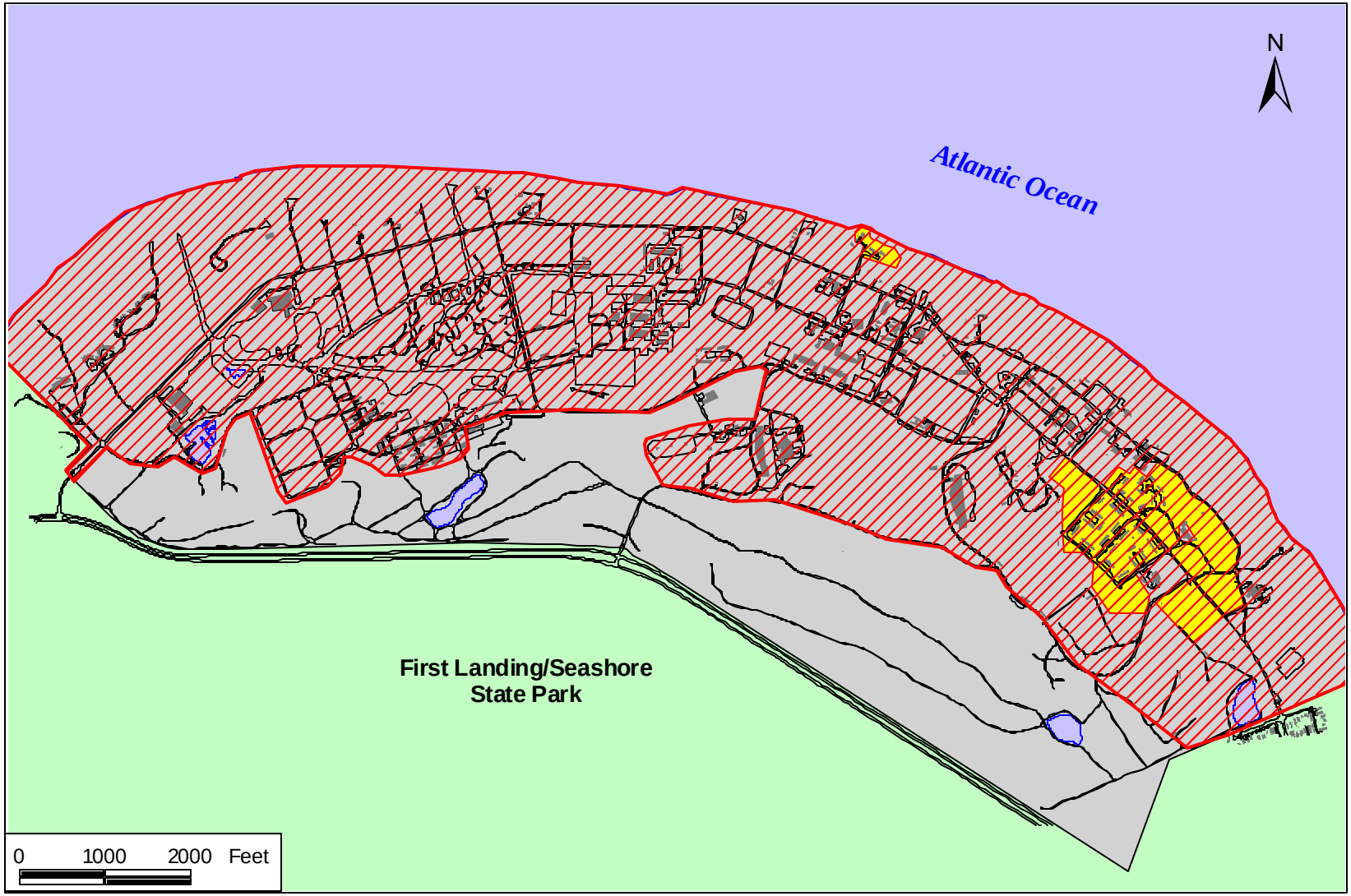
4.2.8.1.3 Native American resources

No known resources of Native American interest are located within the project area.

4.2.8.2 Consequences

4.2.8.2.1 Proposed action

Long-term direct and indirect minor adverse effects on cultural resources would be expected to occur as part of the proposed action. Under this alternative, renovation, alteration, or demolition of some existing housing structures is planned. All existing family housing units would be conveyed to FESMFH. The post commander's home would be renovated in accordance with a plan approved by the Virginia SHPO and Fort Eustis/Department of the Army, and would include renovations to the interior and exterior (J.A. Jones, 2003). Under the proposed RCI, new construction would be within the Historic District, and new construction could be within the viewshed of contributing structures. According to the Program Comments and the memorandum from the Assistant Chief of Staff for Installation Management, garrison commanders may proceed with all management actions without additional consultation or SHPO notification for Capehart-Wherry era housing (Van Antwerp, 2002). The Capehart-Wherry Neighborhood Design Guidelines were reviewed and considered in planning RCI actions that affect Capehart-Wherry era housing, associated structures, and landscape features. All



LEGEND

- Installation Boundary
- Building
- Road
- Shoreline/Water
- Fort Story Historic District
- Proposed RCI Footprint

Source: Anders, 2003.

Fort Story Historic District

Figure 4-4

previously identified archaeological sites would be avoided during development. If sites are encountered during the construction process, the Posts would be notified and proper investigation completed before resumption of construction activities (J.A. Jones, 2003).

The lease would include a clause prohibiting the removal, or disturbing, causing, or permitting to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, remains, or objects of antiquity. In the event such items would be discovered, FESMFH would be required to notify the installation commander or his or her designated representative immediately and protect the site and the material from further disturbance until the installation commander or designated representative gives clearance to proceed. Also, the Army would convey this property with encumbrances, notices, and requirements obligating FESMFH to perform certain actions. These encumbrances would be in the form of covenants in the deed and would be binding on the transferee, as well as any subsequent successors or assigns. Negotiated terms of transfer or conveyance may result in requirements that FESMFH maintain the status quo of historic buildings or archaeological sites or may impose a requirement for consultation with the Virginia SHPO prior to any actions affecting such resources.

4.2.8.2.2. No action alternative

No effects would be expected.

4.2.9 SOCIOECONOMICS

4.2.9.1 Affected Environment

The ROI for the Fort Story social and economic environment is defined as the independent cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach, all located in southeastern Virginia. The baseline year for socioeconomic data is 2000 (see Fort Eustis Section 4.1.9.1.1 for a description of the economic and social environment definition of an ROI and baseline year).

4.2.9.1.1 Economic development

Employment. Table 4-12 shows ROI employment by industry sector. In 2000 employment in the ROI was almost exclusively nonagricultural. The primary sources of employment were government; services; retail trade; and finance, insurance, and real estate industry sectors. Together, these four industry sectors accounted for 80 percent of total employment in the ROI (US DOC-BEA, 2002a). Fort Story has approximately 1,000 active duty military personnel and employs about 85 civilian personnel.

The ROI civilian labor force totaled 448,266 in 2000 (VEC, 2002). The unemployment rate for the ROI was 2.8 percent, slightly higher than Virginia's unemployment rate of 2.2 percent (VEC, 2002).

Income. The PCPI in 2000 for each city in the ROI was below the state and national levels, with the exception of Virginia Beach, which was above the national PCPI level (Table 4-13). Virginia Beach had the highest PCPI in the ROI at $30,445, and had the largest increase in PCPI (45.7 percent) between 1990 and 2000. Norfolk had the lowest PCPI at $21,558, an increase of 39.5 percent since 1990. By comparison, the PCPI of Virginia was $31,120 in 2000, an increase of 51.6 percent since 1990. The PCPI for the United States was $29,469 in 2000, an increase of 50.6 percent since 1990.

Table 4-12. Fort Story ROI Employment by Industry Sector in 2000.

Industry Sector	Number of Employees	Percentage of Total ROI Employment (%)
Agricultural Services, Forestry, Fishing	1,307	0.21
Mining	102	0.02
Construction	38,352	6.21
Manufacturing	27,349	4.43
Transportation and Public Utilities	29,249	4.73
Wholesale Trade	22,351	3.62
Retail Trade	99,090	16.03
Finance, Insurance, and Real Estate	43,717	7.07
Services	171,486	27.75
Government	180,508	29.21
Total Nonfarm Employment	617,277	99.88
Farm	740	0.12
Total Employment	618,017	100.00

Source: USDOC-BEA, 2002a.

Table 4-13. Fort Story ROI Per Capita Personal Income.

Location	1990	2000	Percentage Change (%)
Chesapeake	$18,547	$26,529	43.0
Norfolk	$16,165	$22,383	38.5
Portsmouth	$15,450	$21,558	39.5
Virginia Beach	$20,896	$30,445	45.7
Virginia	$20,527	$31,120	51.6
United States	$19,572	$29,469	50.6

Source: USDOC-BEA, 2002b.

4.2.9.1.2 Demographics

Table 4-14 lists the population in the ROI in 1990 and 2000, with comparative data for Virginia and the United States. Between 1990 and 2000, the ROI had a 5.4 percent increase in population, 9 percentage points lower than the rate of growth in Virginia during the same time period. Within the ROI, Chesapeake had the highest growth, with its population increasing by 31 percent between 1990 and 2000. Norfolk decreased in population by 10.3 percent over the 10-year period. The population of Portsmouth declined by 3.2 percent. These population losses were the result of an out-migration trend that lasted 15 years (Fraim, 2002). However, through a new housing initiative and redevelopment efforts, that trend is reversing.

Table 4-14. Fort Story ROI Population Trends.

Area	1990[1]	2000[2]	Percentage Change, 1990–2000 (%)
Chesapeake	151,976	199,184	31.1
Norfolk	261,229	234,403	-10.3
Portsmouth	103,907	100,565	-3.2
Virginia Beach	393,069	425,257	8.2
ROI	910,181	959,409	5.4
Virginia	6,187,358	7,078,515	14.4
United States	248,709,873	281,421,906	13.2

[1] Source: US DOC-Census, 1990.
[2] Source: US DOC-Census, 2002.

4.2.9.1.3 Housing

On-post family housing. Fort Story has 163 housing units for military personnel with families. The housing subdivisions are described in Section 2.2.1.2. Demand for Fort Story's on-post family housing exceeds supply. On-post housing is fully occupied, though some units may be temporarily unavailable to allow maintenance or renovation to be completed between tenants. The occupancy rate for on-post housing has been in excess of 97 percent (Earle, 2002). The waiting time for on-post family housing ranges from 10 months to 14 months, depending on rank and the number of bedrooms requested (Dean, personal communication, 2003). The longest wait is for enlisted 3-bedroom housing units (US Army, 2001). Of the family housing units on Fort Story, there are no one-bedroom units, 5 two-bedroom units, 154 three-bedroom units, 2 four-bedroom units, and 2 five-bedroom units.

Off-post housing. There were 370,970 housing units in the ROI in 2000, as shown in Table 4-15. Homeowner vacancy rates were low in all four cities in the ROI. Rental vacancy rates ranged from a low of 3.6 percent in Chesapeake to a high of 6.9 percent in Norfolk and Portsmouth. Homeowner vacancy rates and rental vacancy rates decreased or remained about the same since 1990 in all cities in the ROI (USDOC-Census, 1990).

There are not enough housing units on the installation to house all military personnel assigned to Fort Story and their dependents. For military personnel who must live off-post because on-post housing is unavailable, or for those who choose to live off-post, the Army Community Service Office and the Family Housing Office provide assistance with finding off-post housing.

Table 4-16 lists BAH by rank for 2001 for Fort Story (see Section 4.1.9.1.3 for a definition of BAH). Table 4-17 lists information on rental rates and housing costs for off-post housing in the ROI. A comparison of BAH in Table 4-16 with the cost of housing in Table 4-17 shows that military personnel living off-post, especially enlisted personnel with dependents and a need for a home with several bedrooms, could have housing costs greater than their BAH.

Table 4-15. Fort Story ROI Off-Post Housing Quantity in 2000.

	Chesapeake	Norfolk	Portsmouth	Virginia Beach	ROI
Total Housing Units	72,672	94,416	41,605	162,277	370,970
Occupied Housing Units	69,900	86,210	38,170	154,455	348,735
Owner-occupied	52,335	39,238	22,356	101,308	215,237
Owner-occupied Rate	74.9%	45.5%	58.6%	65.6%	61.7%
Renter-occupied	17,565	46,972	15,814	53,147	133,498
Renter-occupied Rate	25.1%	54.5%	41.4%	34.4%	38.3%
Vacant Housing Units	2,772	8,206	3,435	7,822	22,235
Homeowner Vacancy Rate	1.4%	3.2%	2.6%	1.5%	N/A
Rental Vacancy Rate	3.6%	6.9%	6.9%	4.0%	N/A

N/A = not available
Source: US DOC-Census, 2001.

Table 4-16. Fort Story BAH Rate for 2001.

Pay Grade	BAH per Month
E-1 through E-4	$739
E-5	$776
E-6	$837
E-7	$901
E-8	$972
E-9	$1,068
W-1	$838
W-2	$931
W-3	$1,017
W-4	$1,093
W-5	$1,194
O-1	$782
O-2	$834
O-3	$1,014
O-4	$1,237
O-5	$1,402
O-6	$1,413
O-7 through O-9	$1,430

Note: E = Enlisted; W = Warrant Officer; O = Officer.
Source: US Army, 2001.

Table 4-17. Profile of Typical Off-post Housing in the Fort Story Area.

	Bedrooms	Baths	Square Feet	Rent	Deposit	Purchase
Apartment	1	1	600	$520	$520	N/A
Apartment	2	1	800	$650	$650	N/A
Apartment	3	2	1,100	$700	$700	N/A
Townhouse	2	1.5	900	$650	$650	$70,000
Townhouse	3	2	1,100	$750	$750	$80,000
House	3	1.5	1,000	$900	$900	$90,000
House	4	3	2,000	$1,000	$1,000	$135,000
House	3	2.5	1,800	$950	$950	$130,000

N/A = Not available.
Source: US Army, 2001.

4.2.9.1.4 Quality of life

Law enforcement services. Security at Fort Story is provided through the PMO and the MP. The MP and PMO respond to law enforcement emergencies occurring on Fort Story, including the housing areas. The MP enforce laws, regulations, and directives; administer the physical security programs, investigations, crime prevention program, AWOL apprehension, and vehicle and weapons registration; and act as a liaison with civil law enforcement agencies.

Fire protection services. The Fort Eustis/Fort Story Fire and Emergency Services Division provides 24-hour fire and rescue service for the installation (including the housing areas) and responds to hazardous materials emergencies (USATCFS, 2002). Fort Story has one fire station. The Fire and Emergency Services Division also educates the on-post community about fire prevention practices and provides courtesy fire inspections upon request.

Schools. There are no schools on Fort Story. Children residing on the installation, as well as the children of military personnel living off-post, attend a public or private school within the ROI. The school districts in the ROI are Virginia Beach City School District, Norfolk City School District, Portsmouth City School District, and Chesapeake City School District. The majority of the children living on-post attend Virginia Beach schools (Martin, personal communication, 2002). The school districts receive federal funding for any dependents of Fort Story military or civilian personnel attending their schools (see Section 4.1.9.1.4 on schools for a description of federal impact aid under Public Law 103-382). Some federal students also qualify for free or reduced-price lunches, depending on their family's income.

Other Quality of Life Issues. Medical care, post-secondary education, shops and services, family support, and programs for the homeless are not addressed in this EA. There would be no effect on these resources whether the proposed action or the no action alternative is implemented.

4.2.9.1.5 Environmental justice

Please see Section 4.1.9.1.5 for a discussion of EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*.

The ROI has a higher percentage of minority residents compared with Virginia and the United States, as shown in Table 4-18. In 2000, 58.1 percent of the ROI population was white and 35.6 percent was black. All other racial groups combined accounted for 6.4 percent of the population, while 2.9 percent were of Hispanic origin (persons of Hispanic origin may be of any race). In the state of Virginia, 72.3 percent of the population was white, 19.6 percent was black, 8.1 percent was of another minority racial group, and 4.7 percent was of Hispanic origin. For the United States, 75.1 percent of the population was white, 12.3 percent was black, and 12.5 percent was of other minority racial groups. Approximately 12.5 percent of the U.S. population was Hispanic.

The Census Bureau bases the poverty status of families and individuals on 48 threshold variables, including income, family size, number of family members under the age of 18 and over 65 years of age, and amount spent on food. In 1997, approximately 16 percent of the ROI residents were classified as living in poverty, higher than Virginia's poverty rate and the poverty rate for the United States (Table 4-18).

Table 4-18. Race, Ethnicity, and Poverty Status for the Fort Story ROI, Virginia, and the United States in 2000[1].

	ROI	Virginia	United States
White	58.1%	72.3%	75.1%
Black or African American	35.6%	19.6%	12.3%
American Indian and Alaska Native	0.5%	0.3%	0.9%
Asian	2.6%	3.7%	3.6%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%
Other	1.1%	2.0%	5.5%
Two or More Races	2.1%	2.0%	2.4%
Hispanic or Latino[2]	2.9%	4.7%	12.5%
Living in Poverty[3]	16.0%	11.6%	13.3%

[1] Source: USDOC-Census, 2002.
[2] Persons of Hispanic origin may be of any race.
[3] Percentage of persons living below poverty is for 1997.

4.2.9.1.6 Protection of children

Please see Section 4.1.9.1.6 for a description of EO 13045, *Protection of Children from Environment-al Health and Safety Risks.*

Historically, children have been present at Fort Story as residents and visitors (e.g., family housing, schools, users of recreational facilities). The Army has taken precautions for their safety by a number of means, including, but not limited to, the use of fencing, limitations on access to certain areas, and the provision of adult supervision.

As stated in Section 4.2.12, previous investigations identified hazardous substances (ACM, LBP, and possibly pesticides) in many of the housing units on Fort Story. These materials were widely used for

many years in the building products industry and for housing maintenance. It has been determined, however, that their presence in the housing units does not constitute a health hazard under normal circumstances and the materials are being removed or encapsulated as units are renovated.

4.2.9.2 Consequences

4.2.9.2.1 Proposed action

The methodology used for the economic analysis presented below is described in Section 4.1.9.2.1.

Economic development. Short-term direct minor beneficial direct and indirect effects on the ROI economy would be expected. Because the proposed funding for the RCI at Forts Eustis, Story, and Monroe was allocated as a combined total dollar amount, the EIFS model was run on the combined ROIs of Forts Eustis, Story, and Monroe. The economic effect of the proposed RCI action on this combined ROI is presented in Section 4.1.9.2.1. Effects on the economy of the combined ROIs would be minor beneficial and short-term. Appendix D describes the EIFS model in more detail and presents the model input and output tables.

Population. No effects would be expected. Implementation of the proposed action would not change the ROI population.

Housing. Long-term direct beneficial effects would be expected. Because of the poor condition of the existing housing and the lack of 3- and 4-bedroom units on the post, many Army families assigned to the installation seek housing off-post. Rent in the housing market in the surrounding region can exceed a military family's BAH. Implementing the RCI program at Fort Story would eliminate the deficit in 3- and 4-bedroom units and provide quality, affordable housing to Army personnel assigned there.

The proposed RCI would increase the number of family housing units on-post by 90 units (from 163 to 250). In the "worst-case" scenario for the local housing market, 90 off-post units would be vacated by military families who would move on-post, and they would remain vacant. There are 22,235 vacant housing units in the ROI (see Table 4-15). An additional 90 vacant units represents a 0.4 percent increase in the number of vacant units, and would have a very small effect on the ROI's economy.

Quality of life. Long-term direct major beneficial effects on quality of life would be expected. Long-term beneficial effects would occur through the improvement of on-post family housing. The availability of affordable, quality family housing is a key facet of quality of life for soldiers and their families. The proposed action would provide new housing units on-post for military personnel and their dependents and would improve the quality and aesthetic appeal of the existing housing through revitalization. This would allow military families to have quality housing that fits their needs.

Another quality of life concern for military families was that, under the RCI, they could lose their eligibility for the free or reduced-price lunch program for their children. Certain federal aid programs, such as free and reduced-price lunches and WIC, are based on income level. If the proposed action were implemented, soldiers living on-post would receive a BAH (which appears as an entitlement, or allotment, on their paystub as nontaxable income) that would be paid as rent to the development entity. A soldier's total income would appear to be higher, while eligibility in the programs is based on taxable and nontaxable income. With the apparent "increase" in income under the RCI, some families might no longer be eligible for free and reduced-price lunches or WIC, which would reduce their disposable income, affecting their quality of life. However, DoD and the Department of Agriculture (which oversees the

lunch program and WIC) are aware of the potential problem and are working on a solution so that no adverse effect on quality of life would occur.

Schools. No adverse effects would be expected. There are no plans to construct a federally or locally operated school at Fort Story. Students would continue to attend off-post schools. Therefore, federal impact aid to schools would not be reduced. However, if the number of children living on-post increases, federal impact aid would increase because schools receive the maximum amount of aid per student for children who live on-post and attend an off-post school. Therefore, a potential beneficial effect exists, but until the CDMP is finalized, it would not be known how many school-age children would be moving from off-post to on-post housing.

Law enforcement and fire protection. No effects on law enforcement or fire protection services would be expected. Although the housing units would be sold to the developer, the land on which the buildings stand would only be leased to the developer (i.e., the land would continue to be federal government property). Therefore, Fort Story would retain exclusive federal jurisdiction. The MP and the Fort Eustis/Fort Story Fire and Emergency Division would still respond to emergencies in the Fort Story housing areas. If the RCI were implemented, the Fort Eustis/Fort Story Fire and Emergency Services Division would have sufficient personnel and equipment necessary to maintain required emergency response times (Mittelmaier, personal communication, 2003).

Environmental justice. No effects would be expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of the proposed action.

Protection of children. Short-term indirect minor adverse and long-term direct minor beneficial effects on the protection of children would be expected. In the short term, because construction sites can be enticing to children, construction activity could be an increased safety risk. During construction, safety measures stated in 29 CFR Part 1926, Safety and Health Regulations for Construction, and AR 385-10, Army Safety Program, would be followed to protect the health and safety of residents on Fort Eustis, as well as the health and safety of construction workers. To protect their health and safety, FESMFH would employ a full-time Health and Safety Officer. "No Trespassing" signs would be placed around construction sites to deter children from playing in these areas, and construction vehicles and equipment would be secured when not in use. Where possible, high visibility fencing would be erected around construction sites. In addition, FESMFH may employ nighttime security personnel, and conduct neighborhood awareness meetings, explaining hazards and how to avoid them.

Long-term direct beneficial effects on children would be expected because of reduced exposure to hazardous materials. Hazardous materials (including ACM, LBP, and possibly pesticides) identified in Fort Story housing units would be abated through removal or encapsulation during renovation or demolition activities. New construction would not use building products containing hazardous materials. These actions would eliminate children's exposure to these hazardous materials in on-post family housing.

4.2.9.2.2 No action alternative

Economic development and demographics. No effects would be expected. There would be no change in sales volume or employment in the ROI and no change in population.

Housing and quality of life. Long-term adverse effects would be expected. Because of the similarity in the type and quality of housing at Fort Eustis and Fort Story, the implementation of the no action

alternative would be expected to have virtually the same effects at each installation. Therefore, please see Fort Eustis section 4.1.9.2.2 for an assessment of the adverse effects on housing and quality of life from implementation of the no action alternative.

Environmental justice. No effects would be expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of implementing the no action alternative.

Protection of children. Long-term indirect minor adverse effects on the protection of children would be expected. Under current conditions, the hazardous materials identified in on-post housing units are not health hazards because they have been contained or removed. But as homes deteriorate, the risk of children being exposed to hazardous materials (for example, chipping LBP or ACM from cracked asbestos tiles) would increase. Section 4.2.12 provides further information on the types of hazardous materials identified in Fort Story housing units.

4.2.10 TRANSPORTATION

4.2.10.1 Affected Environment

4.2.10.1.1 Roadways and traffic

On-post highways and roads. There are approximately 3.5 miles of primary roads, 6 miles of secondary roads, 8 miles of paved tertiary roads, and 9 miles of unpaved tertiary roads on Fort Story (USACE, Norfolk District, 1996; USATCFE-ENRD, 1998). The major arterial across the installation is Atlantic Avenue (State Route 305). U.S. Route 60 forms the boundary between the installation and First Landing/Seashore State Park. Two gates, East Gate and West Gate, allow access from U.S. 60 into the installation.

Section 2.2.1.2 describes the roads that provide access to the existing housing areas.

Traffic. Traffic problems are minor on the installation, and the existing road network adequately serves the needs and mission of the installation.

4.2.10.1.2 Public transportation

Hampton Roads Transit serves Fort Story with public bus transportation with a stop on Atlantic Avenue near the East Entrance (Hampton Roads Transit, 2003). Installation residents rely on personally owned vehicles, bicycles, or walking to access facilities and services on the post.

4.2.10.2 Consequences

4.2.10.2.1 Proposed action

Short-term direct minor adverse and long-term direct minor beneficial effects on traffic would be expected. During the construction, demolition, and renovation phases, traffic congestion could occur, particularly during rush hours, with the addition of construction vehicles to normal traffic loads. Traffic restrictions to accommodate utility construction and installation would be expected and these could create additional short-term traffic delays. Wear and tear on installation roads could increase with use by construction vehicles.

Long-term beneficial effects on traffic would be expected through implementation of the CDMP. FESMFH would attempt to minimize traffic problems during construction by scheduling construction traffic during nonpeak hours to the extent possible. Construction of a neighborhood center would be expected to reduce the number of trips made by residents to other areas on the installation.

4.2.10.2.2 No action alternative

No effects would be expected.

4.2.11 UTILITIES

4.2.11.1 Affected Environment

4.2.11.1.1 Potable water supply

Potable water is supplied by the city of Norfolk and distributed to Fort Story by the city of Virginia Beach (USATCFS, 1999). Virginia Beach has undertaken the Lake Gaston Project to increase the available water supply and meet the projected regional demand of 59.5 MGD by the year 2030. The installation has a 650,000-gallon on-site storage tank and its own water distribution system. DPW reports that the water pressure from the City of Virginia Beach is so good that it does not allow the water tank to draw down. Distribution lines consist of ductile pipe, PVC pipe, and some asbestos cement pipe. A 1993 upgrade of the distribution system replaced existing mains, added new mains throughout the installation, and provided a looped system through the installation. No increase in demand is projected for military use.

4.2.11.1.2 Sewer

The installation has 20 sanitary sewage pump stations that convey wastewater to the gravity sewers and ultimately to the main on-post pump station located off Marshall's Island Road. The wastewater system is generally in good condition (USATCFS, 2001). Multiple projects have been completed on the collection lines to reduce inflow and infiltration. Since 1993, more than 30,000 linear feet of sanitary sewer line has been rehabilitated or replaced. Wastewater treatment at Fort Story is provided by the Hampton Roads Sanitation District (USATCFS, 2001, cited in Tetra Tech, 2003). Wastewater from Fort Story is collected into the Virginia Beach system, which has two wastewater plants with a combined capacity of 60 MGD. There are plans to upgrade the system to 102 MGD.

4.2.11.1.3 Storm water

Storm water runoff from the family housing area is conveyed via a system of storm water drains to an ocean-bay outfall (#005) (Longmire 1995, cited in USATCFS 1996, cited in Tetra Tech, 2003). The outfall is in a state of disrepair and is periodically covered by sediment deposited during storms. The outfall is still functional, however, because of the porous nature of the sediments deposited.

4.2.11.1.4 Energy sources

The Dominion Virginia Power Company supplies electrical power to Fort Story. Service is provided mainly by overhead distribution lines mounted on poles. Fort Story used an average of 13,410 megawatt hours of electricity in 1994 (USACE, Norfolk District, 1996).

Fuel oil storage tanks are considered under section 4.2.12.1, Hazardous and Toxic Substances.

4.2.11.1.5 Communications

Verizon provides telephone service to Fort Story (SITES, 2001). Existing facilities are adequate.

4.2.11.1.6 Solid waste

Solid waste at Fort Story is managed by an annual contract with the city of Virginia Beach, which provides refuse collection and solid-waste disposal services (USACE, Norfolk District, 1996). Solid waste from the installation, including both municipal waste and construction debris, is taken to either the Oceana or Norfolk transfer stations, where refuse is sorted and then either sent to the Southeastern Public Service Authority (SPSA) landfill in Suffolk or to be burned at the SPSA Refuse-Derived Fuel Plant. The SPSA landfill in Suffolk was estimated to last until 2015 when originally constructed, but the transfer stations substantially reduce the quantity of waste going into the landfill and will extend the life of the landfill by many years (Landfill Superintendent, personal communication, 2003). Fort Story disposed of 2,716 tons of solid waste in 2001.

4.2.11.2 Consequences

4.2.11.2.1 Proposed action

Short- and long-term direct negligible adverse effects and long-term moderate beneficial effects would be expected. A short-term increase in the need for some utility services (notably water and electricity) would be expected during the construction phase of the proposed action. The addition of housing on the installation (from 163 to 253 units) would increase the long-term demand for most utilities. Utility systems on the installation are adequate to support these increases. According to the proposed development plan, FESMFH would replace most of the existing water and sanitary sewer lines in the housing areas with new potable water distribution lines and gravity collection lines, and would complete further investigations to determine how best to dispose of existing lines and the feasibility of connecting to the existing systems (J.A. Jones, 2003). If FESMFH was to replace existing water mains in the housing areas, they would first acquire a Construction Permit from the Virginia Department of Health persistent to their Waterworks Regulations, 12 VAC 5-590-190, *Permits.* The quantity of solid waste generated by construction and demolition at Fort Story (approximately 735 tons/month) (see Appendix E)—not taking into consideration recycling and recapture—would not be expected to create a landfill capacity problem. FESMFH would recycle materials such as carpeting, furniture, appliances, tires, corrugated containerboard, bricks, concrete, and asphalt to the extent possible. Refrigerator coolant also would be recycled, along with windows, doors, and fixtures. Long-term beneficial effects on utilities in general would be expected from housing renovations that would improve utility service at the units. No substantial additional demand on utility systems would be expected.

4.2.11.2.2 No action alternative

No effects would be expected.

4.2.12 HAZARDOUS AND TOXIC SUBSTANCES

4.2.12.1 Affected Environment

Construction and demolition activities require the use of some hazardous and toxic substances and generate some hazardous and toxic waste. Typically, construction and demolition activities involve the

use or generation of petroleum, oils, lubricants, paints, and solvents, and the special hazards discussed below. The use and disposal of hazardous and toxic substances are regulated by CERCLA, RCRA, and TSCA. FESMFH would be required to comply with all applicable requirements of these laws and TCFE Regulation 200-6, *Environmental Management*, including all procedures for hazardous and toxic materials storage, handling, and disposal. Detailed information on hazardous waste storage, handling, and disposal facilities at Fort Story is available in the draft EBS (Tetra Tech, 2003).

In the Fort Story family housing areas, there are 85 underground storage tanks (USTs) supplying fuel oil to 160 housing units. Most of the tanks are 550 to 1,000 gallons in size and constructed of single walled steel, with no cathodic protection or leak detection monitoring equipment. Historically, there have been no environmental concerns regarding USTs except for one location, Building 448. In 1993, a suspected fuel oil leak was reported for the 550 gallon heating oil UST associated with that building. The UST and associated contaminated soil were removed in April, 1995, and no further action status has been granted by VDEQ (DPW, 1995, cited in Tetra Tech, 2003).

Special hazards that could pose risks in the family housing areas are discussed below.

Polychlorinated biphenyls. All transformers were replaced with non-PCB-containing units during an electrical renovation project in the late 1980s (DPW, 2001). Fluorescent light fixtures containing PCB may be present in some of the residences, typically in the kitchen areas. Any fixtures containing PCB will be disposed of in accordance with federal law (PCB disposal is regulated under TSCA) and TCFE Regulation 200-6, *Environmental Management*.

Asbestos-containing materials. ACM were removed from family housing during renovations, but it is likely that ACM still remain in most housing units (DPW Information Paper, 2002, cited in Tetra Tech, 2003). Remaining ACM include air cell insulation on pipes and vinyl tile or sheet flooring and associated mastic. It is reported that air cell insulation was removed from all mechanical rooms when housing units were changed from oil heat to gas and from the walls of kitchens and bathrooms that were renovated. In Capehart housing, some air cell insulation remains on the pipes running under the stairs from the mechanical room to the second floor and in much of the piping in the ceilings. Vinyl tile or vinyl sheeting with ACM remains in the kitchens of some units but is almost always under non-ACM floor tile. Remediation for ACM is regulated by USEPA and OSHA.

Lead-based paint. There is no post-wide survey for LBP in family housing at Fort Story (DPW Information Paper, 2002, cited in Tetra Tech, 2003). A limited number of surveys have been conducted for renovations, child care houses, and special projects. It is believed that there is little LBP on the interior of buildings except in some of the old beach houses. Most of the LBP is believed to be confined to trim—doors, doorframes, window frames, baseboards—except in some beach houses. No LBP is found on the surface; it is covered by several coats of non-LBP. LBP had been applied to all exterior wood and almost all has since been covered with metal or vinyl siding and trim. LBP was removed from the exterior metal poles in the Capehart housing during abatement in 1997. In the 300 and 400 block, almost all the front entrance doors, doorframes, window frames, and mechanical room doors contain LBP. Under US Army Public Works Technical Bulletin 420-70-2 (*Installation Lead Hazard Management* [20 February 1997]), as major repairs/rehabilitation on the family housing units is performed, lead-contaminated paint on surfaces disturbed by the work would be abated. LBP materials would be encapsulated or removed in accordance with Army and OSHA guidelines.

Pesticides. Standard pest management practices are used at Fort Story to control nuisance plants and domestic pests (USATCFS, 1999).

Radon. Some early radon testing that was completed at Fort Story determined that radon is not a concern (Tetra Tech, 2003). Newly constructed housing units and units converted to housing would need to be tested for radon (Christensen, Tim, personal communication, 2003).

Mold. Mold or fungus typically grow on common building components (such as walls, ventilation systems, support beams) that are chronically moist or water-damaged. No adverse health effects from mold exposure in the housing areas have been identified to date.

4.2.12.2 Consequences

4.2.12.2.1 Proposed action

Long-term direct negligible beneficial effects would be expected. Details provided in the CDMP (see Appendix A) indicate that before any demolition or construction begins, a Spill Contingency and Hazardous Waste Management Plan would be prepared. The plan would address storage, inspection, record keeping, personnel training, cleanup and disposal, and all other aspects of and activities related to hazardous materials. All hazardous and toxic materials would be managed in accordance with federal and state laws and regulations, and TCFE Regulation (draft) 200-6, *Environmental Management*. All hazardous, non-hazardous, and universal waste will be disposed through the Fort Eustis and Fort Story Hazardous Waste Facilities. Surfaces potentially contaminated with LBP would be reevaluated by a certified risk assessor before being disturbed and periodic visual monitoring of all positive lead based paint surfaces by the owner is recommended by HUD. These activities will become part of the Operation and Maintenance Program to be developed as part of the Community Development and Management Plan. Mercury in thermostats is contained within a small glass vial and the vials will be placed in a packaging material to prevent breakage in accordance with TCFE Regulation (draft) 200-6, *Environmental Management*. Only individuals trained in universal and hazardous waste management will perform these duties. No environmental or health effects resulting from the storage, handling, or disposal of regulated wastes would be expected. Implementation of the proposed action would reduce the quantity of hazardous and toxic materials in residential areas.

4.2.12.2.2 No action alternative

Long-term indirect minor adverse effects would be expected. Because of the extensive maintenance backlog and budget constraints, housing units containing special hazards such as LBP, ACM, and PCB possibly in ballast, could deteriorate to the extent that those substances would pose health risks to occupants.

4.2.13 CUMULATIVE EFFECTS SUMMARY

A general definition of cumulative effects is provided in Section 4.1.13. The cumulative effects of the utilities privatization effort at Fort Eustis also are discussed in section 4.1.13, and that general discussion applies equally to Fort Story.

The proposed action itself would create a cumulative effect of generating construction and demolition waste from three installations (Forts Eustis, Story, and Monroe) simultaneously, and all of the waste would have to be disposed of in area landfills. The total quantity of solid waste expected to be generated by the proposed action at the three installations, however, would not pose a problem for area landfills. No other projects that would create cumulative effects in association with the housing privatization at Fort Story are known to be planned at this time.

Although not currently planned, additional infrastructure could be developed in the future to serve RCI housing units. Long-term direct minor adverse cumulative effects to wetlands would be expected from potential future development of utility right-of-ways and road crossings. Nationwide Section 404 permits would be obtained from the US Army Corps of Engineers if minor wetland fills were necessary to install utility lines and road crossings.

4.2.14 MITIGATION SUMMARY

Mitigation actions for the proposed Army RCI project have been incorporated into the CDMP. Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. Refer to Table 4-10 for the proposed mitigation measures to be taken for each of the affected resource areas.

4.3 FORT MONROE

4.3.1 LAND USE

4.3.1.1 Affected Environment

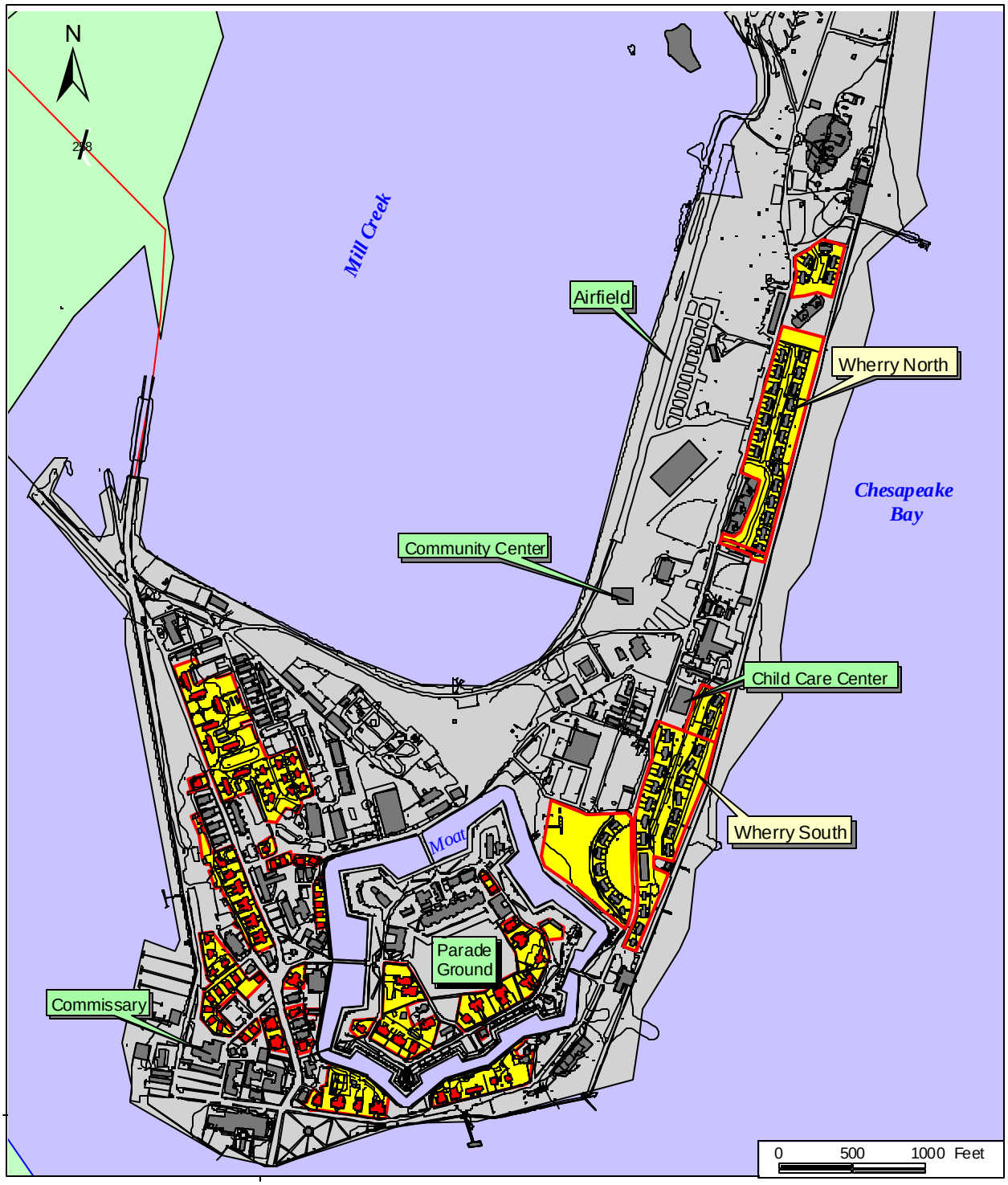
4.3.1.1.1 Regional setting

Fort Monroe is a 568-acre installation located on a J-shaped narrow peninsula at the mouth of the James River in the City of Hampton in southeastern Virginia. The installation is bordered entirely to the east and south by the Chesapeake Bay, and the installation lies at the southeastern end of the Peninsula, one of three mainland peninsulas in Tidewater Virginia.

The installation is approximately 1 mile wide (east to west at the southern portion of the installation) and 3 miles long (north to south). The linear shoreline of Fort Monroe totals 6.25 miles, nearly half of which borders Mill Creek, a 1.25-square-mile tidal estuary that separates Fort Monroe from the mainland. Approximately 108 acres of the installation are submerged. A total of 375 acres of the installation are improved or semi-improved (SAIC, 2000).

4.3.1.1.2 Installation land use

Installation-wide land use. Most of the installation is developed, and there is no distinctly defined cantonment area (SAIC, 2000) (Figure 4-5). A historic fort (known as "the Fort") occupies a large



Land Use in the Vicinity of the RCI Footprint on Fort Monroe

Source: Ft. Monroe, 2002.

Figure 4-5

portion of the southern area of the installation and has a mixture of administration buildings, parade grounds, and housing. The property exterior to the fort is developed with mixed use. Community and recreational resources are distributed throughout the installation. An airfield is used only occasionally for helicopter landings, driver training, and fireworks displays. Open spaces are mowed or heavily landscaped. None of the natural resources at Fort Monroe are required for military training.

Much of the shoreline at Fort Monroe is fortified by seawalls or riprap. A seawall protects the eastern and southern shores (SAIC, 2000).

Historic housing occupies approximately 44.5 acres on the south and southwest portion of the installation. Concentrations of these units are located inside the Fort, along the narrow portion of land just south of the moat, along Ingalls Road west of the Fort, and southeast of the main entrance. Administration buildings, community resource centers, warehouses, and workshops are intermixed with these historic houses throughout this area.

Wherry housing occupies approximately 26.5 acres concentrated in two main areas along the long, narrow, eastern portion of the installation bordering the Chesapeake Bay: A 14-acre parcel of Wherry housing is just east of the Fort and is bounded to the east by a seawall and the Chesapeake Bay. A 13-acre parcel is just east of the airfield area and is also bounded to the east by a seawall and the Chesapeake Bay.

The only area that is not currently developed for family housing but included in the RCI footprint is an approximately 4.3-acre undeveloped property located adjacent to the Fort, along the northeast side of the moat. This area, which comprises open space and cut grass, is adjacent to and west of the southern Wherry housing area, and south of the Old Point National Bank, Post Exchange, and parking areas. According to the CDMP (see Appendix A), this area would remain undeveloped.

Coastal Zone Consistency. A consistency determination, in accordance with the VCP, has been prepared for the proposed action (Appendix B). A review of Virginia's rules of coastal zone management has determined that the proposed action is consistent with the long-term goals and policies of the VCP.

Future development on the installation. Wherry housing is planned to be demolished. No other development projects on the installation that would substantially affect the proposed action are known to be planned.

4.3.1.1.3 Surrounding land use

The cities of Hampton to the northwest and Norfolk to the south contain mixes of residential areas, light retail and commercial businesses, and military facilities.

No known development projects that would affect the proposed action are planned in the ROI.

4.3.1.2 Consequences

4.3.1.2.1 Proposed action

Long-term direct moderate beneficial effects[3] would be expected. Existing housing land use areas would be improved by housing renovations, modernization, and road improvements, and by the addition of new parks, new open spaces, and a new neighborhood center. The quality of the use of the housing land on the installation would thereby be improved. Some areas currently developed as housing would be converted to open space, and no currently undeveloped areas would be developed. All areas that would be affected by the FESMFH housing plan for Fort Monroe are currently used for housing. No new land use incompatibilities, therefore, are foreseen.

4.3.1.2.2 No action alternative

No effects would be expected.

4.3.2 AESTHETICS AND VISUAL RESOURCES

4.3.2.1 Affected Environment

A general definition of aesthetics and visual resources is provided in Section 4.1.2. Visual and aesthetic resources are those natural resources, land forms, vegetation, and man-made structures in the environment that generate one or more sensory reactions and evaluations by the observer, particularly with respect to pleasurable response. Aesthetic resource issues are defined to exclude questions of style, taste, design concept, and urban amenity.

Fort Monroe's position on the Chesapeake Bay makes for an attractive and aesthetically pleasing setting and a multitude of outdoor and recreational opportunities. The installation offers boating, fishing, swimming, sunbathing, picnicking, walking, wildlife-watching, and biking opportunities.

The installation, which resembles a well-tended university campus, is composed of buildings and structures that vary in size and style, having been constructed from the early 1800s to the present. Brick and wood-frame construction, picket fences, and manicured grass characterize the historic housing area. Brick construction, manicured grass, sparse landscaping, beach views, street parking, and overhead utility lines characterize the Wherry housing areas.

3 Throughout the discussions of consequences of the proposed action and no action alternatives, phrases such as "minor beneficial," "negligible adverse," and the like are used. The meanings of these terms are clarified below.

A "direct" effect is one caused by the action and occurring at the same time and place as the action.

An "indirect" effect is one caused by the action but which occurs later in time or farther removed in distance, but which is still reasonably foreseeable.

"Negligible," "minor," and "moderate" all refer to the intensity of effect. Unless otherwise stated, their use does not indicate a significant effect. Specifically, "negligible" indicates that the effect is at the lowest levels of detection. "Minor" indicates that the effect is slight, but detectable. "Moderate" indicates that the effect is readily apparent.

4.3.2.2 Consequences

4.3.2.2.1 Proposed action

Short- and long-term direct minor adverse effects and long-term direct minor beneficial effects would be expected. Similar to the effects discussed for Forts Eustis and Story, renovation and construction activities would create a short-term and localized displeasing aesthetic environment and new housing would somewhat alter views from the housing areas. Removal of some structures and conversion of the land to open space would create a more open atmosphere in some locations. Beneficial effects also would be expected from the Development Entity's plan to complement the natural surroundings by constructing housing units that reflect the architectural environment of the existing historic homes on the installation and that provide views of the Chesapeake Bay.

4.3.2.2.2 No action alternative

Long-term indirect minor adverse effects would be expected. Under the no action alternative, the Army would continue to be responsible for maintenance and renovation of existing housing and for new construction as necessary. However, over time, housing would continue to deteriorate overall and the visual and aesthetic resources on the installation would degrade further.

4.3.3 AIR QUALITY

4.3.3.1 Affected Environment

Background information on air quality control is provided in Section 4.1.3.

4.3.3.1.1 Regional air quality conditions

Fort Monroe is within the same air quality control region as are Forts Eustis and Story, and the regional air quality conditions affecting Fort Monroe are discussed in Section 4.1.3.1.

4.3.3.1.2 Fort Monroe air emissions

Annual emissions of criteria pollutants on Fort Monroe in 2002 are displayed in Table 4-19.

Table 4-19. Annual Emissions Summary of Criteria Pollutants from Stationary Sources at Fort Monroe in 2002.

Abbreviation	Pollutant	Emissions (tons/year)
SO_2	Sulfur Dioxide	3.27
NO_x	Nitrogen Oxides	5.51
VOC	Volatile Organic Compounds	1.3
CO	Carbon Monoxide	5.53
PM	Particulate Matter	5.83

Source: Jennifer Guerrero, personal communication, 2003.

4.3.3.2 Consequences

4.3.3.2.1 Proposed action

Short-term direct negligible adverse effects would be expected. As discussed in Section 4.1.3.2, construction activity creates short-term, minor air pollutant emissions. Construction activity associated with the proposed action would be spread over many years, resulting in negligible local and regional effects. Air emissions resulting from the proposed action were calculated and the results are presented in Appendix C.

4.3.3.2.2 No action alternative

No effects would be expected.

4.3.4 NOISE

Background information on noise is provided in Section 4.1.4.

4.3.4.1 Affected Environment

The noise environment of Fort Monroe is roughly equivalent to that typical of an average high-density suburban area. The main source of noise at the installation is light traffic noise from passenger cars. There are no weapons firing ranges at the installation. Noise from helicopters can be heard throughout the installation when they are present.

4.3.4.2 Consequences

4.3.4.2.1 Proposed action

Short-term direct minor adverse effects would be expected. Construction activities would generate localized noise. The minor adverse effects associated with construction noise would usually be confined to daytime hours during the normal workweek.

4.3.4.2.2 No action alternative

No effects would be expected.

4.3.5 GEOLOGY AND SOILS

4.3.5.1 Affected Environment

4.3.5.1.1 Geologic and topographic conditions

Geology and topography. The sediments underlying Fort Monroe are composed primarily of sand, clay, silt, gravel, and marl. Bedrock is found at depths of 1,000 to 1,500 feet (DPW, 1990, cited in TRADOC, 2000). Fort Monroe is generally flat. Elevation ranges from sea level to 14 feet above msl (DPW, 1990, cited in TRADOC, 2000).

Seismicity. The seismicity of the region is reviewed in Section 4.1.5.1. Fort Monroe is located in Earthquake Hazard Zone 1, which means there is slight probability for damage should an earthquake occur.

4.3.5.1.2 Soils

All of the soils within the proposed footprint at Fort Monroe are loamy fine sands (USDA-NRCS, 2002). Slopes on the soils are 0 to 2 percent, their permeability is rapid, surface runoff from them is slow, and their erosion hazard is slight (Hodges et al., 1985).

4.3.5.1.3 Prime farmland

None of the soils series that occur in the existing housing areas or the proposed RCI footprint are designated as prime or unique farmland soils. Therefore, a Farmland Conversion Impact Rating (Form AD-1006) of the project area is not warranted and no further action is required under the FPPA.

4.3.5.2 Consequences

4.3.5.2.1 Proposed action

Geology and topographic conditions. No effects would be expected.

Soils. Short-term indirect minor direct adverse effects would be expected as a result of implementation of the proposed action. In the short-term, construction activities would be expected to result in an increase in soil erosion. BMPs required by the state of Virginia and proposed to be used by FESMFH—including silt fences, diversion swales, riprap channels, water spreaders, temporary ground cover, and disturbing as little ground area as possible—would reduce the amount of soil erosion. These and other appropriate BMPs would be incorporated into the SWPPP, Erosion and Sediment Control Plan, and General Storm Water Construction Permit that would be acquired before construction begins. In the long-term, erosion from the housing and associated areas would be expected to be minimal after vegetation has been reestablished on areas disturbed during the construction phase and storm water runoff control structures are in place. For the effects of erosion on water quality, see section 4.3.6, Water Resources.

Prime farmland. No effects would be expected.

4.3.5.2.2 No action

No effects would be expected.

4.3.6 WATER RESOURCES

4.3.6.1 Affected Environment

4.3.6.1.1 Surface water

No natural surface water features are located within the proposed footprint. A moat surrounds the Fort where some of the historic housing is located, and the moat is next to a proposed development parcel in

the southernmost Wherry Housing area. The Wherry Housing areas are near the Chesapeake Bay shoreline.

4.3.6.1.2 Groundwater

The water table at Fort Monroe lies between 4 and 5 feet below ground surface (Jennifer Guerrero, personal communication, 2003).

4.3.6.1.3 Floodplains

Fort Monroe is entirely within the 100-year floodplain (Jennifer Guerrero, personal communication, 2003). The flat topography combined with storm surges and flood tides during hurricanes leads to flooding (USACPW, 1996).

4.3.6.2 Consequences

4.3.6.2.1 Proposed action

Short-term minor direct adverse effects and long-term direct negligible beneficial effects would be expected. Short-term impacts from construction would include increased sediment-laden runoff to storm water drains and the Chesapeake Bay. During construction, water quality also could be affected by accidental spills of petroleum products from construction equipment. Mitigation measures that would be implemented to minimize these impacts include adhering to an Erosion and Sediment Control Plan and a SWPPP in keeping with Virginia law and the Chesapeake Bay Preservation Act. Low-impact development measures also are expected to be used in the development. In addition, spill response equipment and trained personnel are available on Fort Monroe to deal with hazardous materials and petroleum product spills, and FESMFH would be required to adhere to Fort Monroe Standard Operating Procedures for hazardous waste handling, storage, and disposal. Adequate sizing of storm water conveyance structures and proper channeling of storm water would be incorporated into the design of the development in order to prevent ponding and flooding during storms.

Long-term beneficial effects would arise from a reduced extent of impervious surface area. Some portions of the development footprint would be converted from developed land to open space, permitting greater infiltration of rain water into the ground. Although the construction would occur within the 20-year floodplain, this factor would not be expected to have an impact on water quality. FESMFH would take the location of the installation within the floodplain by constructing housing units that have lower levels consisting of garages, with living levels raised above ground level (J.A. Jones, 2003).

4.3.6.2.2 No action

No effects would be expected.

4.3.7 BIOLOGICAL RESOURCES

4.3.7.1 Affected Environment

4.3.7.1.1 Vegetation

Native vegetation is currently quite sparse at Fort Monroe, existing only in scattered locations around the salt marsh at Mill Creek and near remaining undisturbed shorelines (USATCFE-DPW, 2002). Most of the usable land at Fort Monroe has been developed and some portions of the installation have been developed for 175 years. Landscape maintenance activities throughout the installation permit limited growth or establishment of native flora (TRADOC, 2000). Most of the shoreline in housing areas at Fort Monroe is fortified by seawalls or riprap.

4.3.7.1.2 Wildlife

A comprehensive survey was conducted at Fort Monroe and Big Bethel Reservoir to determine the occurrence and identity of fauna at both locations (Galvez et al., 1998). On Fort Monroe, surveyors found 24 mammal species and 19 species of fish representing 12 families in Mill Creek adjacent to Fort Monroe. The same study reported 217 bird species at Fort Monroe and Big Bethel Reservoir combined, a number that comprised more than half of all bird species in the state of Virginia. Yellow-crowned night herons (*Nyctanassa violacea*) nest in many trees on the installation. Other common birds include great blue herons (*Ardea herodias*), osprey (*Pandion haliaetus*), many types of waterfowl, and several pairs of American kestrels (*Falco sparverius)* (TRADOC, 2000). Galvez and others (1998) found no amphibians or reptiles at Fort Monroe.

4.3.7.1.3 Sensitive species

No sensitive species reside within the RCI footprint.

4.3.7.1.5 Wetlands

No wetlands occur within the proposed footprint.

4.3.7.2 Consequences

4.3.7.2.1 Proposed action

Short-term direct negligible adverse effects on wildlife would be expected. Common species of animals could be disturbed during the demolition and construction phases of the project; however, effects would be negligible because housing areas provide mostly marginal wildlife habitat that supports species habituated to human disturbances.

4.3.7.2.2 No action alternative

No effects would be expected.

4.3.8 CULTURAL RESOURCES

4.3.8.1 Affected environment

4.3.8.1.1 Prehistoric and historic background

The Fort Monroe ICRMP (McDaid, 2001) can be consulted for a detailed description of the prehistoric and historic background for the project area.

4.3.8.1.2 Status of cultural resource inventories and Section 106 consultations

Fort Monroe was placed on the NRHP on October 15, 1966. The entire installation has been identified as a Registered National Historic Landmark (NHL). All of the buildings except those located on Dog Beach are within the bounds of the NHL District (McDaid, 2001). There are 147 historic buildings identified at Fort Monroe. The Fort is considered one large archaeological site, with 6 "loci" considered NRHP-eligible, 11 potentially eligible, and three ineligible. Housing built in 1952 as part of the Wherry Housing Program occupies 26.5 acres at Fort Monroe along the eastern part of the facility. There are 53 buildings (Figure 4-6). The Wherry housing is proposed to be demolished. Wherry housing is subject to the same Program Comments and Army-wide mitigation measures that apply to the Capehart-era housing.

In addition to the ICRMP, the buildings at the installation were inventoried and evaluated, resulting in a report, *The Architectural Heritage of Fort Monroe: Inventory and Documentation of Historic Structures*, undertaken by the Historic American Buildings Survey (Graham et al., 1987). A plan, the Historic Architectural Repair and Maintenance Plan (HARAM), was developed to provide guidance for maintenance of historic structures on Fort Monroe.

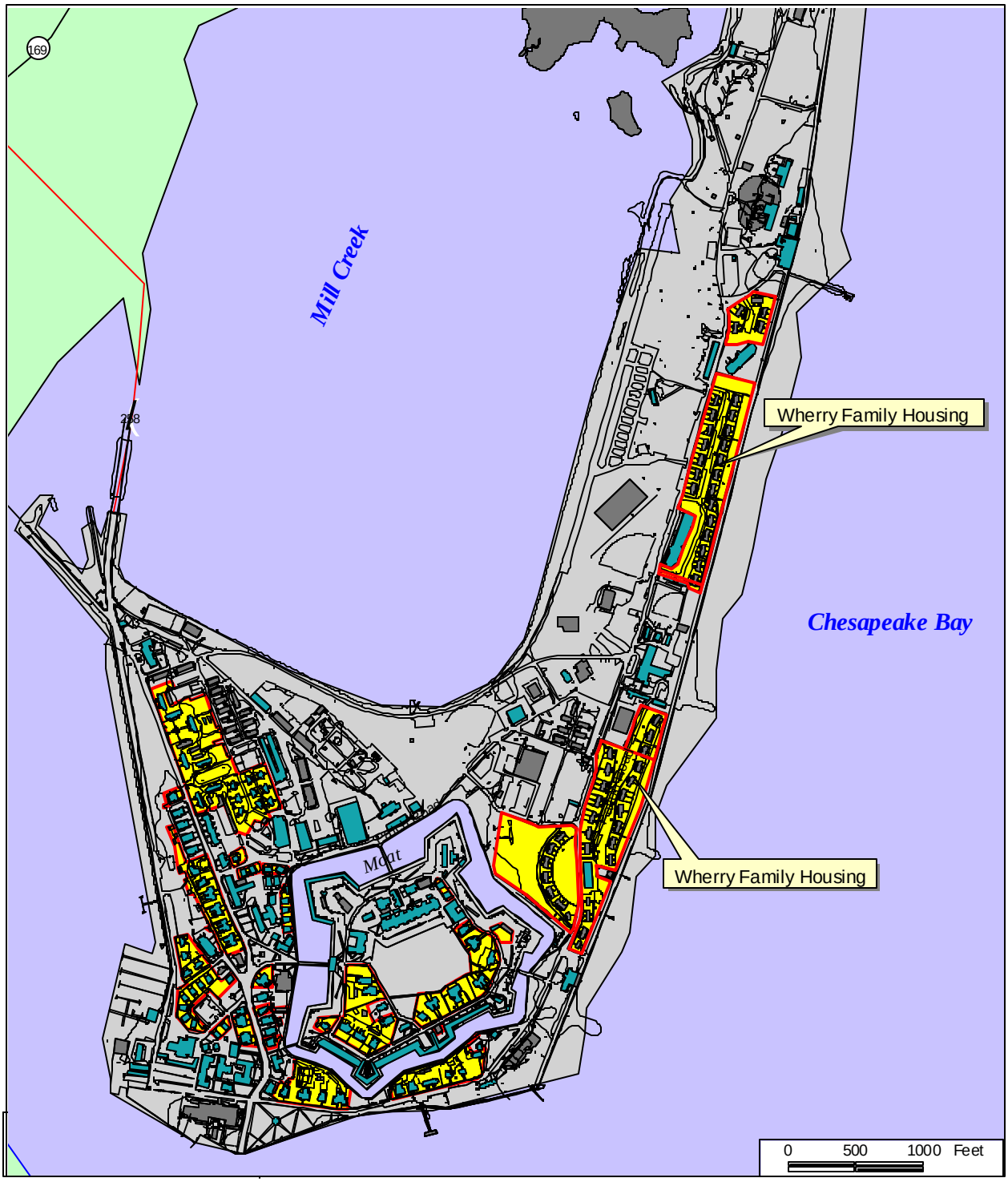
4.3.8.1.3 Native American resources

No known resources of Native American interest are located in the proposed footprint.

4.3.8.2 Consequences

4.3.8.2.1 Proposed action

Long-term direct minor adverse effects on cultural resources could occur as part of the proposed action. Under this alternative, renovation, alteration, or demolition of some existing housing structures is planned. This includes the demolition of Wherry housing and revitalization of some non-Wherry historic housing. In addition, new construction is planned in areas adjacent to the historic portions of the installation. The new housing could adversely affect the historic "feel" of the contributing structures in the NHL District and could be out of character with the District. FESMFH plans, however, to build housing units in keeping with the historic character of the installation (J.A. Jones, 2003). Unidentified archaeological sites may be disturbed during demolition and construction activities. If sites are encountered during the construction process, appropriate personnel on the installation would be notified and a proper investigation completed before the resumption of construction activities (J.A. Jones, 2003). Building 88, in the footprint, is a warehouse in historic building Category IV, "Resources of little or no historical, architectural, or technological importance at Fort Monroe. No special preservation recommendations" (McDaid, 2001).



LEGEND

- Installation Boundary
- Road
- Water
- Historic Buildings
- Proposed RCI Footprint

Source: Ft. Monroe, 2002.

Fort Monroe Historic Structures

Figure 4-6

The lease would include a clause prohibiting removal, or disturbing, causing, or permitting to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, remains, or objects of antiquity. In the event such items are discovered, FESMFH would be required to notify immediately the installation commander or his or her designated representative immediately and protect the site and the material from further disturbance until the installation commander or designated representative gives clearance to proceed. Also under this alternative, all existing family housing units would be conveyed to FESMFH. The Army would convey this property with encumbrances, notices, and requirements obligating FESMFH to perform certain actions. These encumbrances would be in the form of covenants in the deed and would be binding on the transferee, as well as any subsequent successors or assigns. Negotiated terms of transfer or conveyance may result in requirements for FESMFH to maintain the status quo of historic buildings or archaeological sites or may impose a requirement for consultation with the Virginia SHPO prior to any actions affecting such resources. The Capehart-Wherry Neighborhood Design Guidelines were reviewed and considered in planning RCI actions that affect Capehart-Wherry era housing, associated structures, and landscape features.

Completion of mitigation measures, negotiated in consultation with the Virginia SHPO and the ACHP, would reduce any adverse effects on NRHP-eligible historic resources to a minor level. Mitigation measures for historic structures slated for demolition or alteration could include various levels of recordation, including scale photographs or drawings and reports describing the structures. Mitigation for archaeological sites could include archival research and data-recovery excavations and analyses of artifacts. All work would proceed in accordance with the Fort Monroe ICRMP and HARAM.

4.3.8.2.2. No action alternative

No effects would be expected.

4.3.9 SOCIOECONOMICS

4.3.9.1 Affected Environment

4.3.9.1.1 Economic development

See Section 4.1.9.1.1 for a definition of the economic and social environment of an ROI, and baseline year. The ROI for the Fort Monroe geographic area is defined as the cities of Hampton, Newport News, Norfolk, and Poquoson, and York County, Virginia.

Employment. In 2000 employment in the ROI was almost exclusively nonagricultural. The primary sources of employment were government and government enterprises, services, retail trade, and manufacturing, which together accounted for about 83 percent of regional employment. Table 4-20 shows ROI employment by industry category. Although the largest source of jobs in the ROI is government and government enterprises, which provided 33.4 percent of the total employment in 2000, this sector's contribution to total ROI employment decreased by about 5 percentage points during the past decade. In contrast, the services sector increased its share of the total ROI jobs from 21.2 percent to 25.6 percent during the same period. Even with a decrease in employment in the government and government enterprises and manufacturing sectors, the overall distribution of employment remained relatively stable from 1990 to 2000. As of February 2003 Fort Monroe had a workforce of about 3,643 including 1,295 military personnel and 2,348 civilian and contract employees. (J. Guerrero, personal communication, 2003).

The ROI civilian labor force was 270,013 in 2001. The unemployment rate for the ROI in 2000 was 2.2 percent, which was slightly higher than that of the state of Virginia.

Table 4-20. Fort Monroe ROI Employment by Industry.

Industry Sector	1990 ROI Employment (% of Total Employment)	2000 ROI Employment (% of Total Employment)
Agriculture, forestry, and fisheries	2,164 (0.5%)	2,071* (0.5%)
Mining	179 (0.06%)	43* (0.01%)
Construction	19,021 (4.1%)	19,106 (4.2%)
Manufacturing	50,869 (10.9%)	44,353 (9.7%)
Transportation and public utilities	17,709 (3.8%)	19,197 (4.2%)
Wholesale trade	14,892 (3.2%)	12,933 (2.8%)
Retail trade	60,896 (13.0%)	62,833 (14.0%)
Finance, insurance, and real estate	23,635 (5.1%)	23,580 (5.2%)
Services	99,207 (21.2%)	116,674 (25.6%)
Government and government enterprises	178,531 (38.2%)	152,293 (33.4%)
Total Nonfarm Employment	467,103 (100%)	455,278 (99.0%)
Farm Employment	142 (0.05%)	50 (0.01%)
Total Employment	296,213 (100%)	455,328 (100%)

* Data for all areas in the ROI was not provided to avoid disclosure of confidential information; however, estimates are included in the totals for employment.

Source: USDOC-BEA, 2002a.

Income. The PCPI for the ROI in 2000 was $22,985, which was below the state and national levels; it represents an increase of about 36 percent since 1990 (Table 4-21). By comparison, the PCPI for Virginia was $31,120 in 2000, an increase of 51.6 percent since 1990; and the PCPI for the United States was $29,469, an increase of 50.6 percent since 1990.

Table 4-21. 1990 and 2000 Per Capita Personal Income.

Location	1990	2000	Percentage Change (%)
ROI	$16,893	$22,985	36.1
Virginia	$20,527	$31,120	51.6
United States	$19,572	$29,469	50.6

Source: USDOC-BEA, 2002b.

4.3.9.1.2 Demographics

Table 4-22 shows the population trends in the ROI from 1990 to 2000, with comparative data for the state of Virginia and the United States. According to the US Census, the ROI experienced on average a 13

percent increase in population from 1990 to 2000. The change in population for the ROI was significantly lower than the state of Virginia and the national population change.

Table 4-22. 1990 and 2000 Population Trends.

Location	1990[1]	2000[2]	Percentage Change 1990–2000 (%)
Hampton city	133,793	146,437	9.5
Newport News city	170,045	180,150	5.9
Norfolk city	261,229	234,403	10.3
Poquoson city	11,005	11,566	5.1
York County	42,422	56,297	32.7
ROI	618,494	628,853	1.7
Virginia	6,187,358	7,078,515	14.4
United States	248,709,873	281,421,906	13.2

[1] USDOC-Census, 1990.
[2] USDOC-Census, 2002.

4.3.9.1.3 Housing

On-post housing. There are currently 389 family housing units at Fort Monroe, 183 of which are historic housing units. Fort Monroe has a $3 million backlog of maintenance and repair for its historic housing and an additional $18.8 million is needed for renovation of its historic housing (Smith, personal communication, 2002). Approximately 100 Wherry units are in need of major repairs, all historic housing will need some repair within the next 10 years, and 54 of the historic units will need major repair and renovation within the next 10 years. There is a shortage of 3-bedroom housing units in Fort Monroe's historic housing. Fort Monroe's waiting list for Wherry housing now includes some 69 families, and the average waiting time is 12 months.

Off-post housing. There were 250,845 housing units in the ROI in 2000, as shown in Table 4-23. Except for Norfolk, the homeowner vacancy rate in the ROI was comparable to the 1.5 percent vacancy rate for Virginia. In 2000, the rental vacancy rate for the ROI ranged from 2.4 percent in Poquoson to 6.9 percent in Norfolk. The rental vacancy rate for the state of Virginia was 5.2 percent.

There are not enough housing units on the installation to house all military personnel assigned to Fort Monroe and their dependents. For military personnel who must live off-post because on-post-housing is unavailable, or for those who choose to live off-post, the Army Community Service Office and the Family Housing Office provides assistance with finding off-post housing.

Table 4-24 lists BAH by rank for 2002 for Fort Monroe (see Section 4.1.9.1.3 for a definition and description of BAH).

Table 4-25 lists information on rental rates and housing costs for off-post housing in the ROI. A comparison of BAH in Table 4-24 with the cost of housing in Table 4-25 demonstrates that military

personnel living off-post, especially enlisted personnel with dependents and need for a home with several bedrooms, could have housing costs greater than their BAH.

Table 4-23. Fort Monroe ROI Off-Post Housing Quantity for 2000.

Location	Hampton	Newport News	Norfolk	Poquoson	York County	ROI	Virginia
Total housing units	57,311	74,117	94,416	4,300	20,701	250,845	7,078,515
Occupied housing units	53,887	69,686	86.210	4,166	20,000	233,949	2,699,173
Owner-occupied	31,570	36,513	39,238	3,503	15,157	125,981	1,837,939
Owner-occupied Rate	58.6%	52.4%	45.5%	84.1%	75.8%	53.8%	68.1%
Renter-occupied	22,317	33,173	46,972	663	4,843	107,968	861,234
Renter-occupied Rate	41.4%	47.6%	54.5%	15.9%	24.2%	46.2%	31.9%
Vacant housing units	3,424	4,431	8,206	134	701	16,896	205,019
Homeowner vacancy rate	2.0%	1.9%	3.2%	1.0%	1.3%	N/A	1.5%
Rental vacancy rate	5.6%	6.2%	6.9%	2.4%	2.7%	N/A	5.2%

Source: USDOC-Census, 2001.
N/A= not available

Table 4-24. Fort Monroe 2003 BAH with Dependent Rate.

	Number of Dependants								
Rank	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Enlisted	$759	$759	$759	$759	$759	$832	$897	$968	$1,060
Warrant	$833	$926	$1,012	$1,078	$1,155	N/A	N/A	N/A	N/A
Officer	$802	$831	$1,009	$1,187	$1,311	$1,322	$1,337	$1,337	$1,337

N/A=Not applicable.
Source: US Army, 2003.

Table 4-25. Profile of Typical Off-Post Housing in the Fort Monroe Area.

	Bedrooms	Baths	Square Feet	Rent	Deposit	Purchase
Apartment	2	1.5	900	$650	$650	N/A
Townhouse	2	1	950	$600	$600	N/A
Townhouse	3	1	1,150	$650	$650	N/A
Apartment	3	1.5	1,200	$700	$700	N/A
Townhouse	3	1.5	1,250	$725	$725	$75,000
House	3	2	1,600	$1,100	$1,100	$125,000
House	4	2	1,800	$1,250	$1,250	$195,000
House	4	2.5	2,400	$1,400	$1,400	$230,000

N/A = Not available.
Source: US Army, 2003.

4.3.9.1.4 Quality of life

Law enforcement services. Security at Fort Monroe is provided through the PMO and the MP. The MP and PMO respond to law enforcement emergencies occurring on Fort Monroe, including the housing areas. The MP enforce laws, regulations, and directives; administer the physical security programs, investigations, crime prevention program, and AWOL apprehension; and act as a liaison with civil law enforcement agencies.

Fire protection services. Fort Monroe Fire and Emergency Services Division provide 24-hour emergency service for the installation, including the housing areas. The Fire and Emergency Services Division also educates the on-post community about fire prevention practices.

Schools. There are no schools on Fort Monroe. Children residing on the installation attend Hampton city public schools: Bryan Elementary School, Spratley Middle School, and Phoebus High School (TRADOC, n.d.). Students receive transportation from the post to most schools. See Table 4-26 for Fort Monroe's utilized capacity and enrollment for school year 2000–2001 (See Section 4.1.9.1.4 on schools for description of federal impact aid authorized under Public Law 103-382). Some students also qualify for free or reduced-price lunches, depending on their family's income.

There are numerous private schools at every level near the installation. Tuitions vary widely and increase with the grade level at most institutions. Parents can pay as much as $2,000 for 5-day preschool programs. High school costs can range from $3,000 to $5,000 per year (TRADOC, n.d.).

Other quality of life issues. Medical care, post-secondary education, shops and services, family support, and programs for homeless persons are not addressed in this EA because there would be no effect on these resources if either the proposed action or the no action alternative was implemented.

Table 4-26. Fort Monroe Utilized Capacity and Enrollment for School Year 2000–2001.

School	Utilized Capacity (estimate)	Enrollment 2000–2001
Bryan Elementary School (K-5)	*	448
Spratley Middle School (6-8)	100%	952
Phoebus High School (9-12)	100%	1,322
Total		2,722

Source: Charlie French, Fort Monroe School Liaison Officer, personal communication, 2003.

* Data not available. Enrollment is under capacity according to Fort Monroe School Liaison Officer.

4.3.9.1.5 Environmental justice

Please see Section 4.1.9.1.5 for a description of EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.*

Compared with the State of Virginia and the United States, the ROI has a higher population of minorities, as shown in Table 4-27. In 2000, 65.5 percent of the population was white and 28.4 percent of the population was black. All other racial groups combined totaled about 6 percent of the population. About 3 percent of the total minority population was of Hispanic or Latino origin. For the United States about 75

percent of the population was white, about 12 percent black, and almost 13 percent was of other minority racial groups. Person of Hispanic or Latino origin accounted for approximately 2 percent of the population identified in the other minority racial groups.

Table 4-27. Race, Ethnicity, and Poverty Status for the ROI, the State of Virginia and the United States for 2000.

Race	ROI	Virginia	United States
White	65.5%	72.3%	75.1%
Black or African American	28.4%	19.6%	12.3%
American Indian and Alaska Native	0.1%	0.3%	0.9%
Asian	2.3%	3.7%	3.6%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%
Other[1]	1.1%	2.0%	5.5%
Two or more races	2.1%	2.0%	2.4%
Children in poverty, 1997 model-based estimate[2]	19.1%	17.0%	19.9%
Persons in poverty, 1997 model-based estimate[2]	13.3%	11.6%	13.3%

[1] Hispanics may be of any race.

[2] Percentage based on 1997 model-based estimate.

Source: US DOC-Census, 2001.

The Census Bureau bases the poverty status of families and individuals on 48 threshold variables, including income, family size, number of family members under the age of 18 and over the age of 65, and amount spent on food. In 1997, 13.3 percent of the residents living in the ROI were classified as living in poverty, which was higher than the state of Virginia's rate and the same as the national rate. See Table 4-27.

4.3.9.1.6 Protection of children

Please see Section 4.1.9.1.6 for a discussion of EO 13045, *Protection of Children from Environmental Health and Safety Risks.*

Historically, children have been present at Fort Monroe as residents and visitors (e.g., users of recreational facilities, and family housing). The Army has taken precautions for their safety by a number of means, including, but not limited to, the use of fencing, limitations on access to certain areas, and the provision of adult supervision.

As stated in Section 4.3.12, previous report findings indicate that hazardous substances (ACM, LBP, and possibly pesticides) were present in the housing units on Fort Monroe. These materials were widely used for many years in the building products industry and for housing maintenance. It has been determined, however, that their presence in the housing units does not constitute a health hazard under normal circumstances and the materials are being removed or encapsulated as units are renovated.

4.3.9.2 Consequences

4.3.9.2.1 Proposed action

The methodology used for the economic analysis presented below is described in Section 4.1.9.2.1.

Economic development. Short-term minor beneficial direct and indirect effects on the ROI economy would be expected. Because the proposed funding for RCI at Forts Eustis, Story, and Monroe was allocated as a combined total dollar amount, the EIFS model was run on the combined ROIs of Forts Eustis, Story, and Monroe. The economic effect of the proposed RCI action on this combined ROI is presented in Section 4.1.9.2.1. Effects on the economy of the combined ROIs would be minor beneficial and short-term. Appendix D describes the EIFS model in more detail and presents the model input and output tables.

Population. No effects would be expected. There would be no change in the population of the ROI.

Housing. Long-term beneficial effects would be expected. Because of the poor condition of the existing housing and the lack of housing units on the post, some Army families assigned to the installation seek housing off-post. Rent in the housing market in the surrounding region can exceed a military family's BAH. Implementing the RCI program at Fort Monroe would eliminate the lack of affordable housing to Army personnel assigned there.

Because the total number of housing units on-post would decrease under RCI, (from 389 to 271) the local housing market would not be adversely affected by implementation of the RCI program.

Quality of life. Long-term minor beneficial and short-term minor adverse effects on quality of life would be expected. Long-term minor beneficial effects would occur through the improvement of on-post family housing. The availability of affordable, quality family housing is a key facet of quality of life for soldiers and their families. The proposed action would provide new housing units on-post for military personnel and their dependents and would improve the quality and aesthetic appeal of the existing housing through revitalization. The rent for the new and revitalized on-post housing would not exceed a soldier's BAH. This would allow military families living on the post to have quality housing that fits their needs without having to pay more than their BAH.

Another quality of life concern for military families would most likely affect lower-ranking personnel and their families. If the RCI was implemented, military families could lose their eligibility for the free or reduced-price lunch program for their children. Certain federal aid programs, such as free and reduced-price lunches and WIC, are based on income level. Under the proposed action, soldiers living on-post would be paid a BAH, which appears as an entitlement, or allotment, on their pay statement as nontaxable income; the BAH would then be paid by the soldier to the private developer as rent. The service member's total income would appear to be higher, while eligibility in the programs is based on taxable and non-taxable income. With the apparent "increase" in income under RCI, some families may no longer be eligible for free and reduced-price lunches or WIC, which would reduce their disposable income, affecting their quality of life. However, the DoD and the Department of Agriculture (which oversees the lunch program and WIC) are aware of the potential problem and are working on a solution so that no adverse effect on quality of life would occur.

Schools. No adverse effects would be expected. There are no plans to construct a federally or locally operated school at Fort Monroe. Students would continue to attend off-post schools. Therefore, federal impact aid to schools would not be reduced. However, if the number of children living on-post increases, federal impact aid would increase because schools receive the maximum amount of aid per student for children who live on-post and attend an off-post school. Therefore, a potential beneficial effect exists, but until the CDMP is finalized, it would not be known how many school-age children would be moving from off-post to on-post housing.

Law enforcement and fire protection. No effects on law enforcement or fire protection services would be expected. Although the housing units would be sold to the developer, the land on which the buildings stand would only be leased to the developer (i.e., the land would continue to be federal government property). Therefore, Fort Monroe would retain legislative jurisdiction. The MP would still respond to emergencies in the Fort Monroe housing areas.

Environmental Justice. No effects would be expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of the proposed action.

Protection of Children. Short-term minor adverse and long-term minor beneficial effects on the protection of children would be expected. In the short term, because construction sites can be enticing to children, construction activity could be a safety risk. During construction, safety measures stated in 29 CFR Part 1926, Safety and Health Regulations for Construction, and AR 385-10, Army Safety Program, would be followed to protect the health and safety of residents on Fort Monroe, as well as the health and safety of construction workers. It is recommended that barriers and "No Trespassing" signs be placed around construction sites to deter children from playing in these areas and that construction vehicles and equipment be secured when not in use.

Long-term minor beneficial effects on children would be expected because of reduced exposure to hazardous materials. Hazardous materials (ACM, LBP, and possibly pesticides) identified in Fort Monroe housing units would be abated through removal or encapsulation during renovation or demolition activities (see Section 4.3.12). New construction would not use building products containing hazardous materials. These actions would eliminate children's exposure to hazardous materials in on-post family housing.

4.3.9.2.2 No action alternative

Economic development and demographics. No effects would be expected. There would be no change in sales volume or employment in the ROI and no change in population.

Housing and quality of life. Long-term adverse effects would be expected. Because of the similarity in the type and quality of housing at Fort Eustis and Fort Monroe, the implementation of the no action alternative would be expected to have virtually the same effect at each installation. Therefore, please see Section 4.1.9.2.2 for an assessment of the adverse effects on housing and quality of life from implementation of the no action alternative.

Environmental Justice. No effects would be expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of implementing the no proposed action alternative.

Protection of Children. Long-term minor adverse effects on the protection of children would be expected. Under current conditions, the hazardous materials identified in on-post housing units are not health hazards because they have been contained or removed. As homes deteriorate, however, the risk of children's exposure to hazardous materials (for example, chipping LBP or ACM from cracked asbestos tiles) would increase. Section 4.3.12 provides further information on the types of hazardous materials identified at Fort Monroe housing units.

4.3.10 TRANSPORTATION

4.3.10.1 Affected Environment

4.3.10.1.1 Roadways and traffic

On-post highways and roads. The installation has a well-developed network of roads that serve all areas. Access to Wherry family housing areas along the Chesapeake Bay is provided by Fenwick Road. Wherry housing near the Fort is accessed from Griffith Street and Patch Road. These roads connect to other roads on the installation, including Stillwell Drive, McNair Drive, and Fenwick Road. Access to historic housing inside the Fort is provided at three gates: the North Gate, the East Gate, and the Main Gate (on the western edge). A foot bridge is located at the southwestern corner of the Fort. Fenwick Road passes by historic housing south of the Fort and connects to U.S. Route 258 and McNair Drive, which together with secondary roads serve historic housing areas on the western portion of the installation.

Traffic. The existing road network is able to serve the needs and mission of the installation.

4.3.10.1.2 Public transportation

There is no bus service on Fort Monroe other than that provided for students to off-post schools. Installation residents must rely on personally owned vehicles, bicycles, or walking to access facilities and services on post. Hampton Roads Transit serves the entire Hampton, Newport News, and Norfolk region and stops outside the installation near the West Gate (Hampton Roads Transit, 2003).

4.3.10.2 Consequences

4.3.10.2.1 Proposed action

Short-term direct minor adverse and long-term direct minor beneficial effects on traffic would be expected. As discussed for Forts Eustis and Story, traffic congestion could occur during the construction, demolition, and renovation phases of the proposed action, particularly during rush hours when construction vehicles would increase and potentially delay traffic. FESMFH, however, would schedule construction traffic during non-peak hours to the extent possible. Traffic restrictions to accommodate utility construction and installation could create additional short-term traffic delays. Wear and tear on installation roads would be expected to increase when used by construction vehicles. Long-term benefits would arise from the plan to tier residential streets in new housing areas directly off Fenwick Road, thereby improving mobility for the residents.

4.3.10.2.2 No action alternative

No effects would be expected.

4.3.11 UTILITIES

4.3.11.1 Affected Environment

4.3.11.1.1 Potable water supply

Fort Monroe is supplied with potable water by the Army-owned Big Bethel Water Treatment Plant (BBWTP), located off the installation. The water comes from the upper and lower reservoirs, together known as the Big Bethel Reservoir. The facility capacity is 4 MGD. During 2000 Fort Monroe consumed approximately 247,000 gallons per day. Fort Monroe has connections to the Newport News Water System for water when it is not available from the BBWTP. In 2001 Fort Monroe purchased water a total of 191 days from Newport News because of line breaks or other maintenance operations at BBWTP (TRADOC, 2001). Water is stored in a 300,000-gallon storage tank constructed in 1993 and distributed in 4- to 14-inch diameter lines that are mostly of cast iron. The average age of the distribution system is 32 years. Water pressure throughout the distribution system is approximately 50 pounds per square inch (TRADOC, 2001).

A "whole neighborhood revitalization and renovation" project in the historic housing at Fort Monroe was begun in September 1994 (RCI, 2002). This project is to be completed in four phases, and the first three phases have been completed. The project includes installation of central air and heat, replacement and upgrading of electrical wiring and plumbing fixtures as required, and removal of lead based paint and asbestos. Because all of the quarters affected are considered historical, the project must comply with Section 106 of the National Historical Preservation Act.

4.3.11.1.2 Sewer

The sanitary sewer system at Fort Monroe consists of main collection sewers (both gravity and force mains), service connection sewers, and 13 sanitary sewage stations (TRADOC, 2001). The condition of the lines varies because they were installed at various times over the past 85 years. All inadequate segments of the sewer system gravity main lines were replaced during the 1970s and all pumps were serviced or replaced within the last 10 years. Infiltration and inflow into the lines can be substantial, especially during storm events. A study of the problem revealed that five of the eleven major portions of the sanitary sewer system appeared to be in poor condition and in need of repair to correct deficiencies (Hankins and Anderson, 2000). Approximately 35 percent of the system was recommended to be repaired or replaced. Sanitary wastewater from Fort Monroe is pumped from the Final Pumping Station near the Commissary to the Hampton Roads Sanitation District (TRADOC, 2001).

4.3.11.1.3 Storm water

Storm water drains via a system of conveyances into Mill Creek and via outfalls into the Chesapeake Bay (Tetra Tech, 2002b). Water exchange between the Chesapeake Bay and Mill Creek is tidally driven. Several storm water outfalls discharge into the moat, which exchanges water with Mill Creek daily through the sluice gates located just north of the North Gate Bridge on Patch Road (Guerrero, personal communication, 2003). Flooding during storms surges and flood tides during hurricanes reduces the discharge capacity of the storm sewer system, and sedimentation of system lines also occurs (USACPW, 2002). An environmental assessment for the Fort Monroe Real Property Master Plan (USACPW, 2002) recommended that a detailed storm drainage plan be made before any construction projects are undertaken.

4.3.11.1.4 Energy sources

Electricity. Fort Monroe purchases electricity from Dominion Virginia Power Company. A single delivery point is located near the center of the installation (TRADOC, 2001). The electrical distribution system is composed of 13.2 kilovolt underground primary construction. Housing units are individually metered. As mentioned in section 4.3.11.1.1, electrical wiring is being replaced as part of the "whole neighborhood revitalization and renovation" project in the historic housing at Fort Monroe.

Natural gas. Fort Monroe purchases natural gas from the Virginia Natural Gas Company (TRADOC, 2001). Gas service is master-metered at a single delivery point located just inside the Main Gate. Gas is provided to the 183 historic housing units, but not to Wherry Housing (TRADOC, 2001; Jennifer Guerrero, personal communication, 2003). The existing system, which was installed in the 1976–1978 time frame, is in poor condition and Fort Monroe would require an offeror under the Army's Utility System Privatization Plan to replace the system within 3 years of accepting ownership (TRADOC, 2001).

Storage tanks. Fuel oil storage tanks are considered under section 4.3.12.1, Hazardous and Toxic Substances.

4.3.11.1.5 Communications

Verizon provides telephone service to Fort Monroe. The existing system is adequate for the existing and predictable future needs of the installation.

4.3.11.1.6 Solid waste

Residential trash, curbside recycling, and commercial waste is collected by Reliable Trash Service and taken to the Hampton-NASA Steam Plant for energy recovery. If the Steam Plant is down, the waste is taken to Bethel Landfill in Hampton (Jennifer Guerrero, personal communication, 2003). Solid waste generated from construction is transported to either Bethel Landfill or Holland Landfill located in Suffolk. There are no active landfills on the installation.

4.3.11.2 Consequences

4.3.11.2.1 Proposed action

Short-term direct negligible adverse effects would be expected because of the slight increase in demand for water and electricity during the construction phase of the proposed action. Long-term direct minor beneficial effects on utilities in general would be expected. Renovation of existing housing would improve utility service at the units, and new construction would have modern utility systems. According to the proposed development plan, FESMFH would replace most of the existing water and sanitary sewer lines in the housing areas with new potable water distribution lines and gravity collection lines, and would complete further investigations to determine how best to dispose of existing lines and the feasibility of connecting to the existing systems (J.A. Jones, 2003). If FESMFH was to replace existing water mains in the housing areas, they would first acquire a Construction Permit from the Virginia Department of Health persistent to their Waterworks Regulations, 12 VAC 5-590-190, *Permits.* No substantial additional demand on utility systems would be expected. The quantity of solid waste generated by construction and demolition at Fort Monroe (approximately 287 tons/month) (see Appendix E), not taking into consideration recycling and recapture, would not be expected to create a landfill capacity problem. FESMFH would recycle materials such as carpeting, furniture, appliances, tires, corrugated

containerboard, bricks, concrete, and asphalt to the extent possible. Refrigerator coolant also would be recycled, along with windows, doors, and fixtures. Storm water flow could decrease after the development is completed because of a net increase in undeveloped land.

4.3.11.2.2 No action alternative

No effects would be expected.

4.3.12 HAZARDOUS AND TOXIC SUBSTANCES

4.3.12.1 Affected Environment

Construction and demolition activities require the use of some hazardous and toxic substances and generate some hazardous and toxic waste. Typically, construction and demolition activities involve the use or generation of petroleum, oils, lubricants, paints, and solvents, and the special hazards discussed below. The use and disposal of hazardous and toxic substances are regulated by CERCLA, RCRA, and TSCA. FESMFH would be required to comply with all applicable requirements of these laws and Fort Monroe regulations and standard operating procedures for hazardous and toxic materials storage, handling, and disposal.

To identify areas where the storage, release, or disposal of hazardous substances or petroleum products or their derivatives may have occurred, the Army, through contractor support, prepared an EBS of the areas at Fort Monroe considered for RCI project development. The EBS also identified any existing non-CERCLA-related environmental or safety issues (e.g., ACM and LBP) that would limit or preclude use of the property for RCI actions. Detailed information on hazardous waste storage, handling, and disposal facilities at Fort Monroe is available in the draft EBS (Tetra Tech, 2002b).

One active UST was identified within the historic family housing that could be affected under the RCI program at Fort Monroe. The UST is located at quarters 167 on Patch Road and is for #2 fuel oil. There have been no documented releases from USTs at the installation to date (Ms. Melissa Green, personal communication, May 2002, cited in Tetra Tech, 2002b).

There are no USTs in the Wherry family housing (Jim Meade, personal communication, 2002, cited in Tetra Tech, 2002b). Wherry family housing used natural gas when originally constructed, therefore never had fuel oil USTs.

Special hazards that could pose risks for the family housing areas are discussed below.

Polychlorinated biphenyls. Transformers have been replaced with non-PCB units (Jennifer Guerrero, personal communication, 2003). No spills or incidents have been reported. Fluorescent light fixtures potentially containing PCB were also identified in some of the historic housing, typically in the kitchen and bathroom areas.

Asbestos-containing materials. All historic family housing units located on the RCI properties on Fort Monroe were inspected for the presence of asbestos, though the inspections did not involve any destructive testing (Guerrero, personal communication, 2003). The most common ACM in the homes were pipe wrap and fitting insulation including air cell and magnesia insulation and transite panels. Some ACM in the homes were ceiling and wall tiles, refractory mud, floor tiles, and associated mastic. As mentioned in section 4.3.11.1.1, ACM removal is part of the "whole neighborhood revitalization and

renovation" project in the historic housing at Fort Monroe. Approximately three-quarters of the historic homes have been completely renovated, which involved removal of ACM (RCI, 2002). No asbestos testing has been done at the Wherry housing. The age of the housing and absence of abatement records would indicate a likelihood that ACM are present. Remediation for ACM is regulated by USEPA and OSHA.

Lead-based paint. In the 1990s, the Environmental Division of DPW/L collected soil samples from near 10 of the historic family housing buildings. Of the 10 buildings evaluated, six had soil lead concentrations from 18.4 to 2540 milligrams per kilogram (mg/kg). According to 24 CFR 35, soil with a lead concentration of 5,000 mg/kg or more must be abated. No soil lead concentrations above 5,000 ppm that would require removal were found. As mentioned in section 4.3.11.1.1, LBP removal is part of the "whole neighborhood revitalization and renovation" project in the non-Wherry historic housing at Fort Monroe. Approximately three-quarters of the non-Wherry historic homes have been completely renovated, which involved removal of LBP (RCI, 2002). Under US Army Public Works Technical Bulletin 420-70-2 (*Installation Lead Hazard Management* [20 February 1997]), as major repairs/ rehabilitation on the family housing units is performed, lead contaminated paint on surfaces disturbed by the work would be abated. LBP materials would be encapsulated or removed in accordance with Army and OSHA guidelines.

Pesticides. Historical pesticide usage associated with the proposed footprint appears to be limited to general usage for pest control within and around the site structures and for landscaping purposes. There have been no known spills of pesticide chemicals at Fort Monroe.

Radon. Family housing, child care centers, and other buildings at Fort Monroe were tested for radon from Spring 1989 to Spring 1990. No readings from 191 samples were more than 4 picocuries per liter (pCi/L), EPA action level for radon (Vail, 1991). The average of the readings was 0.22 pCi/L. Newly constructed housing units and units converted to housing would need to be tested for radon (Tim Christensen, personal communication, 2003).

Molds. Mold has been identified in some of the historic housing on Fort Monroe, though no adverse health affects have been identified to date from mold exposure in any of the RCI properties.

Unexploded Ordnance. Parsons Engineering Science, Inc., performed an unexploded ordnance (UXO) survey at Fort Monroe in 1994 (USACE, 1995). Fort Monroe was the first Artillery School of Practice, the largest arsenal during the Civil War, and a practice ground for testing armor-piercing shells. The survey identified more than 73,000 anomalies (indications of buried ferrous-based metal), many of which (45,900) were detected in the area that included the Wherry housing, the airfield, some industrial areas, and a large area north of the housing and airfield. Soils were investigated to 4 feet below the surface. Suspect UXO was found at the site, but hazardous munitions residue was not present. No military practice rounds or inert training aids were found, and no chemical agents, hazardous materials, or environmental waste residues were observed. The study report estimated a density of 1.67 UXO per acre in both the Historic Fort area and the Wherry family housing area. Of the total 21,851 anomalies estimated to have the potential to be UXO based, an estimated 1,309 (1.8 percent) would be expected to be UXO on Fort Monroe. The risk of single exposures to UXO is minimal, except to construction workers for subsurface activities. A permit is required to dig deeper than 6 inches below ground at Fort Monroe.

4.3.12.2 Consequences

4.3.12.2.1 Proposed action

Short-term direct minor adverse effects and long-term direct negligible beneficial effects would be expected. All hazardous and toxic materials would be handled in a manner consistent with applicable laws and regulations, and thus no environmental or health effects resulting from their storage, handling, or disposal would be expected. The risk of exposure to UXO increases with construction activities where subsurface digging is involved. Implementation of the proposed action would reduce the overall quantity of hazardous and toxic materials in residential areas.

4.3.12.2.2 No action alternative

Long-term indirect minor adverse effects would be expected. Because of the extensive maintenance backlog and budget constraints, it is possible that housing units containing special hazards such as LBP and ACM could deteriorate to the extent that those substances would pose human health risks to occupants.

4.3.13 CUMULATIVE EFFECTS SUMMARY

A general definition of cumulative effects is provided in Section 4.1.13. The cumulative effects of the utilities privatization effort at Fort Eustis also are discussed in Section 4.1.13, and that general discussion applies equally to Fort Monroe.

The proposed action itself would create a cumulative effect of generating construction and demolition waste from three installations (Forts Eustis, Story, and Monroe) simultaneously, and all that waste would have to be disposed of in area landfills. The total quantity of solid waste expected to be generated by the proposed actions at the three installations, however, would not pose a problem for area landfills. No other projects that would create cumulative effects in association with the housing privatization at Fort Monroe are known to be planned at this time.

4.3.14 MITIGATION SUMMARY

Mitigation actions for the proposed Army RCI project at Fort Monroe have been incorporated into the CDMP. Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. Refer to Table 4-10 for a summary of the proposed mitigation measures to be taken for each of the affected resource areas.

SECTION 5.0

FINDINGS AND CONCLUSIONS

This EA has been prepared to evaluate the potential effects on the natural and human environment from activities associated with implementation of the Army RCI at Forts Eustis, Story, and Monroe, Virginia. The EA has examined the Army's preferred alternative (implementation of the CDMP negotiated with FESMFH, the selected Development Entity) and the no action alternative.

The EA has evaluated potential effects on land use, aesthetic and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic substances.

5.1 FINDINGS

The evaluation of the proposed action, identified as the Army's preferred alternative, indicates that the physical and socioeconomic environments at Forts Eustis, Story, and Monroe, and in the ROI would not be significantly affected. The footprints at the installations do not present substantial physical or environmental constraints to developing the RCI property, and in developing the CDMP, FESMFH would avoid, minimize, or mitigate potential adverse effects whenever possible, resulting in only minor effects on the human and natural environment. The predicted consequences on resource areas are described briefly below. Table 5-1 provides a summary and comparison of the consequences of the proposed action versus the no action alternative.

5.1.1 CONSEQUENCES OF THE PROPOSED ACTION

5.1.1.1 Land Use

***All installations*:** Long-term direct moderate beneficial effects[1] on installation land use would be expected. Improvements to housing that would be made by FESMFH would improve the quality of the use of the land. Land use compatibility issues with neighboring land uses are not foreseen nor would the ability of the installation to meet its military mission be adversely affected.

5.1.1.2 Aesthetics And Visual Resources

***All installations*:** Short-term direct minor adverse effects would be expected from the visual presence of construction equipment during the construction and renovation phase of the RCI program. Long-term

[1] Throughout the discussions of consequences of the proposed action and no action alternatives, phrases such as "minor beneficial," "negligible adverse," and the like are used. The meanings of these terms are clarified below.

A "direct" effect is one caused by the action and occurring at the same time and place as the action.

An "indirect" effect is one caused by the action but which occurs later in time or farther removed in distance, but which is still reasonably foreseeable.

"Negligible," "minor," and "moderate" all refer to the intensity of effect. Unless otherwise stated, their use does not indicate a significant effect. Specifically, "negligible" indicates that the effect is at the lowest levels of detection. "Minor" indicates that the effect is slight, but detectable. "Moderate" indicates that the effect is readily apparent.

Table 5-1. Summary of Potential Environmental and Socioeconomic Consequences.

	Environmental and Socioeconomic Consequences	
Resource[1]	**Proposed Action**	**No Action Alternative**
Land Use	Long-term beneficial	No effects
Aesthetics and Visual Resources		
Fort Eustis	Short-term adverse Long-term beneficial	Long-term adverse
Fort Story	Short- and long-term adverse Long-term beneficial	Long-term adverse
Fort Monroe	Short-term adverse Long-term beneficial	Long-term adverse
Air Quality	Short-term adverse	No effects
Noise	Short-term adverse	No effects
Geology and Soils	Short-term adverse effects on soils	No effects
Water Resources		
Fort Eustis	Short- and long-term adverse effects on surface waters	No effects
Fort Story	Short-term adverse effects on surface waters Long-term adverse effects on storm water flow Long-term beneficial effects on flooding	No effects
Fort Monroe	Short-term adverse effects on surface waters Long-term beneficial effects on storm water flow	No effects
Biological Resources		
Fort Eustis	Short- and long-term adverse effects on common wildlife species and vegetation Short-term adverse effects on wetlands	No effects
Fort Story	Short- and long-term adverse effects on common wildlife species and vegetation	No effects
Fort Monroe	Short- and long-term adverse effects on common wildlife species	No effects
Cultural Resources	Long-term adverse[2]	No effects
Socioeconomics	Short-term beneficial effects on economic development Long-term beneficial effects on housing and quality of life Short-term adverse and long-term beneficial effects on the protection of children Cumulative: Long-term beneficial	Long-term adverse effects on housing and the protection of children
Transportation	Short-term adverse and long-term beneficial effects on traffic Cumulative: Short-term adverse and long-term beneficial	No effects
Utilities	Short-term adverse effects on public water supply and electricity Long-term beneficial effects on all utilities Cumulative: Long-term adverse	No effects
Hazardous and Toxic Substances		
All installations	Long-term beneficial	Long-term adverse[3]
Fort Monroe	Short-term adverse	Long-term adverse[3]

[1] Effects apply to all three installations unless otherwise noted.

[2] Long-term adverse effects could occur if subsurface cultural materials are located in proposed construction areas. Housing structures for the NRHP also could be affected.

[3] Long-term adverse effects could occur. It is assumed that Forts Eustis, Story, and Monroe would continue to abate ACM and LBP in accordance with all applicable laws, but abatement would occur over a longer period of time than the period of the proposed action.

moderate beneficial effects would be expected within the housing areas from improvements to roads, construction of new neighborhood centers, the incorporation of parks and green space, and the overall modernization of the housing structures. As a result of the RCI program, the overall aesthetic appeal of the housing areas would be expected to improve.

***Fort Eustis*:** Long-term direct moderate beneficial effects would be expected from the creation of new open spaces, modernized structures, and improved neighborhood layouts, which would improve the overall aesthetic appeal of the housing areas.

***Fort Story*:** Long-term direct minor adverse effects would be expected from the development of some of the additional housing where it would permanently alter views of the ocean.

***Fort Story and Fort Monroe*:** Long-term minor beneficial effects would be expected from the Development Entity's plan to complement the natural surroundings by constructing housing that provides views of the Chesapeake Bay and that reflects the architectural environment of the existing historic homes on Fort Monroe.

5.1.1.3 Air Quality

***All installations*:** Short-term direct negligible adverse effects would be expected. Construction equipment would emit minor amounts of air pollutants, but not to a level that would cause degradation of the air quality in the region.

5.1.1.4 Noise

***All installations*:** Short-term direct minor adverse effects would be expected because of construction activities, but they would be confined to the normal work week and work hours.

5.1.1.5 Geology And Soils

***All installations*:** Short-term direct minor adverse effects would be expected on soils. Construction activities would be expected to result in some soil erosion, and the erosion would be reduced to the extent possible by the use of BMPs. No effects would be expected on either geology/topography, prime farmland soils, or seismicity.

5.1.1.6 Water Resources

***All installations*:** Short-term indirect negligible adverse effects on surface waters would be expected from the generation of sediment-laden runoff and potentially from minor spills or drippage of petroleum compounds. These effects would be reduced by the use of BMPs to control runoff and filter or otherwise reduce its pollutant load before discharge to surface waters. No effects to groundwater quality or floodplains would be expected.

***Fort Story*:** Long-term direct negligible adverse and beneficial effects would be expected. Impervious surface would increase slightly under the proposed action, and storm water volume could increase as a result. Infiltration into the generally sandy soils of the installation should mostly prevent overland flow and ponding. The frequency of storm-driven flooding in houses would be expected to decrease after those units currently subject to flooding are removed.

***Fort Monroe*:** Long-term beneficial effects could arise from a reduced extent of impervious surface area. Some portions of the development footprint would be converted from developed land to open space, permitting greater infiltration of rain water into the ground.

5.1.1.7 Biological Resources

***All installations*:** Short- and long-term direct minor adverse effects on common wildlife species would result from their displacement when areas are cleared for new homes. Small areas would be affected, and no population-level effects would be expected. The habitat provided by new housing would be very similar to that currently available to cantonment-area species. No effects would be expected on aquatic species.

***Fort Eustis*:** Short- and long-term direct minor adverse effects on vegetation would be expected. Some vegetation would be cleared for construction, and new vegetative cover would be expected to become established in the new communities. No effects would be expected to sensitive species. Short-term indirect negligible adverse effects on wetlands would be expected because of minor storm water runoff from construction areas to the Warwick River and its tributaries.

***Fort Story*:** Short- and long-term direct minor adverse effects on vegetation would be expected. Some vegetation would be cleared for construction, and new vegetative cover would be expected to become established in the new communities. No effects to sensitive species or wetlands would be expected.

5.1.1.8 Cultural Resources

***All installations*:** Long-term direct minor adverse effects on cultural resources could occur if construction was to disturb archaeological sites that are eligible or potentially eligible for listing on the NRHP.

***Fort Story*:** Long-term direct and indirect minor adverse effects on cultural resources could occur. Renovation, alteration, or demolition of some existing housing structures is planned. New construction would be within the Historic District, and new construction could be within the viewshed of contributing structures.

***Fort Monroe*:** Wherry housing would be demolished and new construction is planned in areas adjacent to the historic portions of the facility. The new housing could adversely affect the historic "feel" of the contributing structures in the NHL District and could be out of character with the District, although FESMFH plans to build housing units in keeping with the historic character of the installation. FESMFH would maintain the non-Wherry historic housing units in accordance with the Fort Monroe Integrated Cultural Resources Management Plan, which incorporates federal and state historic preservation standards.

5.1.1.9 Socioeconomics

***All installations*:** Short-term direct and indirect minor beneficial effects on economic development would be expected from the expenditures and employment associated with construction of the family housing on Forts Eustis, Story, and Monroe. The economic benefits would last only for the duration of the construction, or approximately 6.5 years. Long-term direct moderate beneficial effects on housing would be anticipated because of the elimination of the deficit in 3- and 4-bedroom units on the installations and the provision of quality, affordable housing to Army personnel assigned to them. The local housing market would not be adversely affected by implementation of the RCI program. Long-term direct major

beneficial effects on the quality of life would be expected from the improvement of on-post family housing. No adverse effects on schools would be expected.

Short-term indirect minor adverse and long-term direct minor beneficial effects on the protection of children would be expected. Construction sites can be enticing to children, and construction activity could be an increased safety risk. Beneficial effects on children would be expected because of reduced exposure to hazardous materials, such as ACM and LBP, that would be abated or removed during renovation or demolition activities.

No effects on population, law enforcement, fire protection services, or environmental justice would be expected. No effects would be expected.

5.1.1.10 Transportation

***All installations*:** Short-term direct minor adverse and long-term direct minor beneficial effects on traffic would be expected. Minor wear and tear on installation roads could be caused by construction vehicles, and road improvements planned for the housing areas would improve conditions and traffic circulation. Some traffic would be alleviated by the addition of neighborhood centers and other amenities, which would be expected to decrease the number of short trips taken by car. No effects on public transportation would be expected.

5.1.1.11 Utilities

***All installations*:** Short-term direct negligible adverse effects on potable water supply and electricity would be expected. Construction activities, equipment, and personnel would be expected to increase potable water and electricity use temporarily during the construction phase of the proposed action. The solid waste generated by construction and demolition would be substantial, but would not be expected to create a landfill capacity problem, especially if an aggressive recycling effort was conducted during construction. No effects on other utilities would be expected. Long-term direct moderate beneficial effects on utilities in general would be expected. Renovation of existing housing would improve utility service at the units, and new construction would have modern utility systems. No substantial additional demand on utility systems would be expected.

5.1.1.12 Hazardous And Toxic Substances

***All installations*:** Long-term direct negligible beneficial effects would be expected from the removal of hazardous materials used in the construction of the existing housing on the installation and their replacement with nonhazardous ones.

***Fort Monroe*:** Short-term direct minor adverse effects would be expected. The risk of exposure to UXO increases with construction activities where subsurface digging is involved.

5.1.1.13 Cumulative Effects

***All installations*:** A sizeable quantity of solid waste would be generated by the proposed actions at the three installations, but it would not be expected to pose a problem for area landfills. Recycling of materials that can be recycled would reduce the impact of the proposed action on landfill capacity.

***Fort Eustis*:** Construction of a second access road and new elementary school during the timeframe in which the new housing is being constructed would add to noise, dust, vehicle emission, and traffic

problems, but after its construction it would be expected to alleviate some traffic congestion on the installation, potentially including that caused by construction vehicles.

The new elementary school planned to be constructed on Fort Eustis would reduce the number of children transported off-post to attend school, which also could help alleviate some rush-hour traffic and improve the quality of life for the families affected.

A security fence planned to be constructed at Fort Eustis for force protection purposes. Could add to the visual quality of the renovated family housing areas and would provide added security and safety for residents.

Privatization of the utilities at the installations could create beneficial and/or adverse cumulative effects for soldiers and their families.

5.1.1.14 Mitigation

Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. Refer to Table 4-10 in Section 4.14 for a summary of proposed mitigation measures.

5.1.2 CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Only those resources that would be affected by the no action alternative are discussed below.

5.1.2.1 Aesthetics And Visual Resources

***All installations*:** Long-term indirect minor adverse effects would be expected. With the Army continuing to be responsible for maintenance and renovation of housing, housing would be expected to continue to deteriorate, degrading the visual and aesthetic resources of the installation.

5.1.2.2 Socioeconomics

***All installations*:** Long-term indirect adverse effects on housing and the quality of life would be expected because family housing on the installations would perpetuate deficiencies in quality of life for many soldiers and their dependents and the inventory of family housing would continue to decrease over time, forcing military employees and their families to find housing off-post. Long-term indirect minor adverse effects on the protection of children would be expected from the continued presence of hazardous materials in family housing.

No effects on economic development and demographics or environmental justice would be expected.

5.1.2.3 Hazardous And Toxic Substances

***All installations*:** Long-term indirect minor adverse effects would be expected from the continued presence of hazardous materials such as LBP and ACM.

5.2 CONCLUSIONS

Based on the analysis performed in this EA, implementation of the preferred alternative would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment. Preparation of an Environmental Impact Statement is not required. Issuance of a Finding of No Significant Impact would be appropriate.

SECTION 6.0

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Ms. Kathy Dean, Fort Eustis Housing Office. May 9, 2003.

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Mr. Charlie French, School Liaison Officer, Fort Monroe, Virginia. May 4, 2003.

Mr. Timothy E. Goodger, Officer in Charge, National Marine Fisheries Service, Habitat Conservation District, Oxford, Maryland. Letter sent June 26, 2002.

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Ms. Susan E. Smead, Virginia Department of Historic Resources, Richmond, Virginia. Letter sent to Stephen A. McCall, Fort Eustis, Virginia. April 15, 2002.

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APPENDIX A

Community Development and Management Plan Brief

(excerpts)

CDMP
Fort Eustis, Fort Monroe and Fort Story

Volume II: Development Plan
Section A: Development Overview

Prepared by:

J.A. JONES

1. INTRODUCTION

a. Overview

J.A. Jones Community Development Company, LLC will accept 1321 residences in the Hampton Roads Army installation inventory. During the initial development period lasting five years, 1320 residences will be demolished, one historic residence will be renovated, and 1211 residences will be newly constructed. The end state number of residences is 1212. The development plan will create seven distinctive neighborhoods throughout Fort Eustis, Fort Monroe, and Fort Story.

A numerical profile of the development program for each installation is shown below:

TABLE – DEVELOPMENT PROGRAM

Installation	Start	Demolish	Renovate	Build	End State
Fort Eustis	952	952	0	874	874
Fort Story	164	163	1	249	250
Fort Monroe	205	205	0	88	88

b. Summary of Development Requirements

TABLE – MAJOR REQUIREMENTS OF THE DEVELOPMENT PLAN

REQUIREMENT	ELEMENT OF PLAN	VALUE TO THE ARMY
Revitalize and/or replace old and inadequate family Housing. (RFQ)	New Housing Construction/Renovation	1. Marketable Housing 2. Provides a sense of pride to the residents 3. Comfortable living and working areas

Enhance the quality of life and well being for our military communities. (RFQ)	Aesthetics & Appearance	1. Various types of spacious floor plans. 2. Distinctive housing types. 3. Spacious parks and open spaces.
Continuous improvement of New housing and existing housing. (RFQ)	Operations and Maintenance	1. Continued Retention of Residents.
Provide high-quality communities/neighborhoods and amenities in accordance with principles of "New Urbanism" (RFQ)	New Urbanism	1. Pedestrian friendly streets. 2. Definitive neighborhood structure
Provide two car garages and additional storage. (RFQ)	Parking and Storage	1. Clean backyards 2. Reduces the amount of cars on the streets
Promote "Spirit Program" into Housing and Masterplan	Environmental/Energy	1. Energy efficient homes. 2. Preservation of existing environment
Provide ancillary facilities in collaboration with existing government programs. (RFQ)	Neighborhood Centers	1. Place for Social Activities 2. Support structure for existing programs
Preservation of Historic Homes	Historic Renovation	

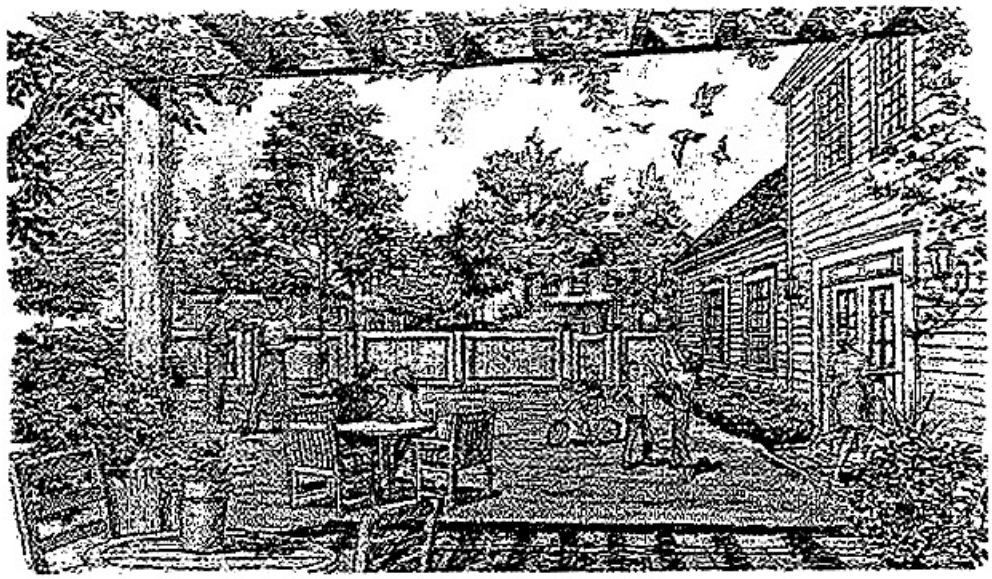
2. DESIGN PRINCIPLES

a. Defining New Urbanism

New Urbanism promotes the creation and restoration of diverse, walkable, compact, vibrant, mixed use communities composed of the same components as a conventional development, but assembled in a more integrated fashion, in the form of complete communities. J.A. Jones understands that home is

a place where the military resident can ease the tension of the many life changes they will experience over their career in the military. Our neighborhood structure, will meet the basic needs of the residents not found in the open market.

Pedestrian circulation areas will take precedence over the position of vehicular thoroughfares. Sidewalks will be the focal point of the neighborhoods, because this creates the sense of "neighborhood", where the residents will be able to walk down sidewalks that provide the resident with a safe and efficient means of access between homes, amenities and other specific uses. These sidewalks will also be axis lines that lead the residents to open spaces, natural buffers, and parks. The neighborhood will thrive on an active lifestyle where residents can utilize natural open spaces, ball fields, and neighborhood centers.



b. Adhering to the Principles of New Urbanism

In developing the neighborhoods for each of the three installations we have followed the quality of standards set by RCI and the collaborative effort of the CDMP process and incorporated the new urbanism concepts and principles. Each neighborhood will be designed in accordance with the following New Urbanism principles:

COMMUNITY IDENTITIY – Each community at Fort Eustis, Fort Monroe, and Fort Story will have distinctive architecture character with parks and greens that provide active and passive recreation areas. The communities will be designed in terms of how they might best serve the residents and visitors and how they can reinforce the social and cultural aspects of community live within their boundaries.

WALKABILITY – The communities will have pedestrian friendly streets that enable the residents to walk to most things within a 10 minute time frame. The homes will have porches that will be located close to the street. The sidewalks will be lined with trees that provide shade and aesthetic landscaping for the homes and the streets.

HOUSING – The new homes will be designed to give the resident a full range of amenities and square footage that will promote ownership and pride in the homes. The housing communities will have a range of types, floor plans, and sizes to meet the needs of the resident and the installations. The architecture will emphasize beauty, aesthetics, human comfort which will create a sense of place and pride.

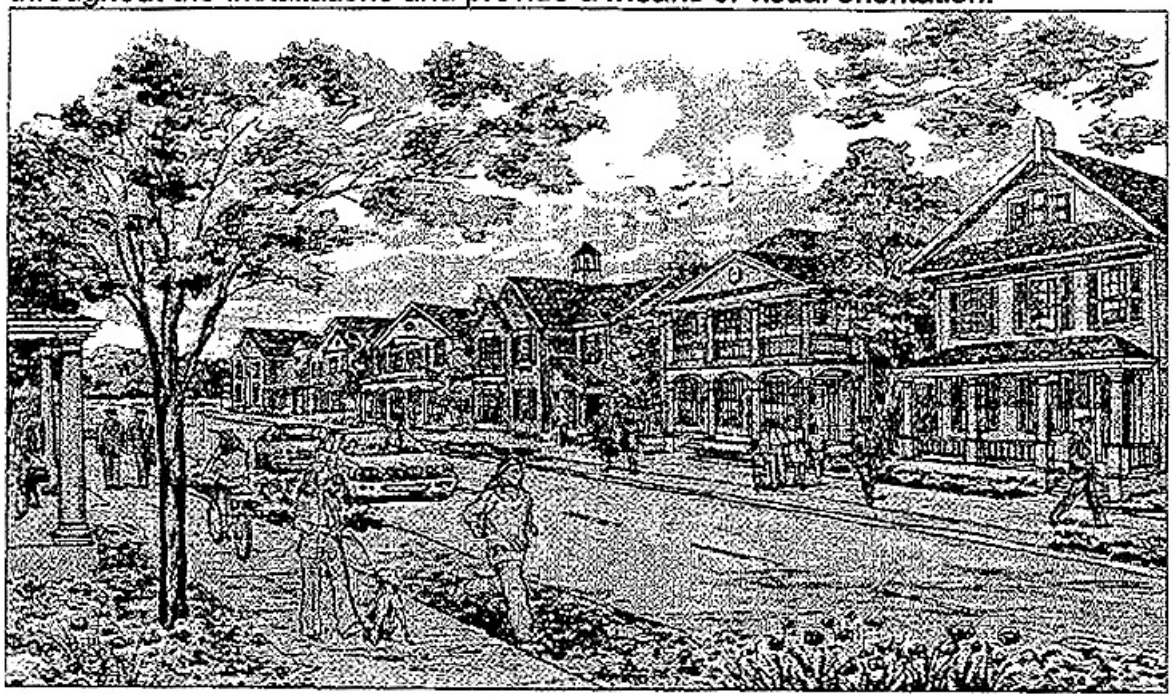
TRADITIONAL NEIGHBORHOOD – The traditional neighborhoods that J.A. Jones will develop will provide continuity in the design and layout, but provide the flexibility to distinguish between visual districts or neighborhoods and prevent monotonous or repetitive looking homes, streets, and parks. The traditional

neighborhood will ensure the safety of the residents, by providing pedestrian friendly streets and meeting the standards of anti-terrorist and force protection requirements. The traditional neighborhoods will project a strong sense of entry with monument signage and buffer landscaping. The neighborhoods will promote spacious green spaces that will contribute to an aesthetically pleasing environment.

PARKING – In each of the housing communities, J.A. Jones will soften the inherent harshness of on street parking by providing alley loaded two car garages and additional parking spaces in areas that have no major topography changes. This plan will minimize the visual and functional conflicts found in the existing housing communities.

SIGNAGE – Signs are used to visually communicate information. J.A. Jones will create coordinated signage system that will enhance the visual appearance of each of the installations. This will also improve the organization and efficiency of movement throughout the post.

CONNECTIVITIY – Vehicular and pedestrian corridors form the circulation system, which is an important and vital function for any military installation. J.A. Jones will provide corridors that allow circulation of people and material throughout the installations and provide a means of visual orientation.



3. COMMUNITY OVERVIEW

a. The Communities of Fort Eustis

Fort Eustis Family Housing will have (3) three new neighborhoods, each containing its own identity expressed in the design of the housing types, neighborhood centers, and streetscapes.

TABLE – HOUSING INVENTORY

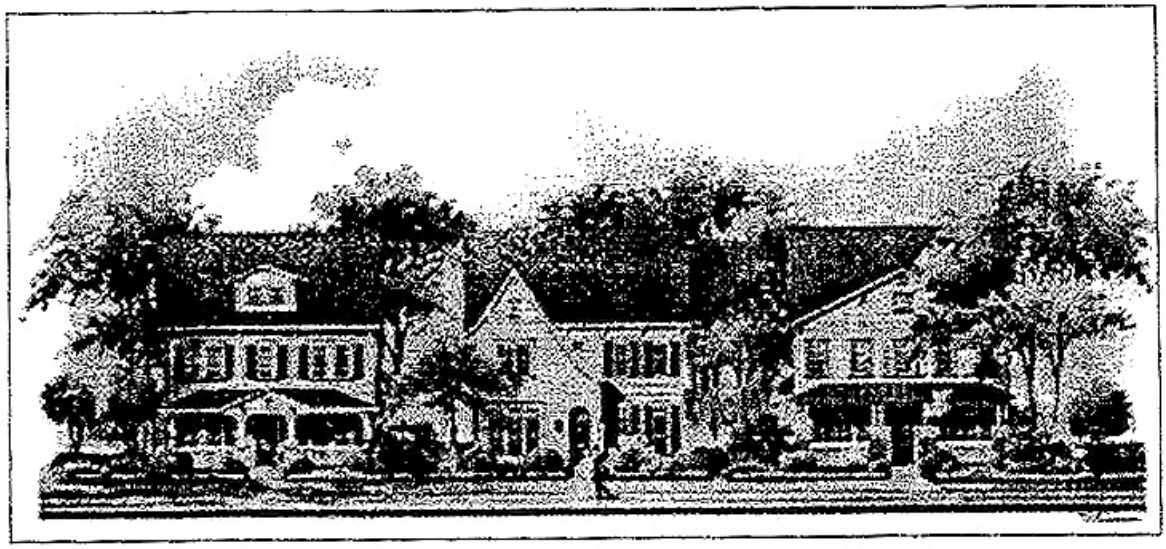
	E1-E5	E6- E8	01-03; W1-W3	04-O5; E9; W4-W5	06 +	TOTAL
North Village	464	0	0	0	0	464
South Village	100	206	0	0	0	306
South Village (officers)	0	0	52	41	11	104
TOTAL	**564**	**206**	**52**	**41**	**11**	**874**

1) Housing Description

North and South Villages

North and South Village of Fort Eustis will have 770 new homes. The homes will be large townhome units that are separated by an insulated interior partition wall. This separation gives each duplex a seamless separation that makes the home feel like a "single family" home.

The character of the housing will be a contemporary reflection of the traditional neighborhood found in the Hampton/Tidewater area, where homes where built on a small town grid system, allowing residents to feel like they are contributors to their community make-up and stability.



South Village (Officers) Housing

The housing will have different exterior facades and interior specifications according to rank. The neighborhood housing will provide a high quality of comfort, safety, and affordability that cannot be found in the open market outside the installation. Specific house design features will add visual emphasis to the front entryway rather than to garages, which will be located in the rear of each home. In the South Village (Officers Quarters) the officers will live in larger duplex and single-family homes. The neighborhood will be designed to highlight the accomplishments of the Senior Officers and create an officers row promoting a sense of order and strength leading up to the Generals Quarters.

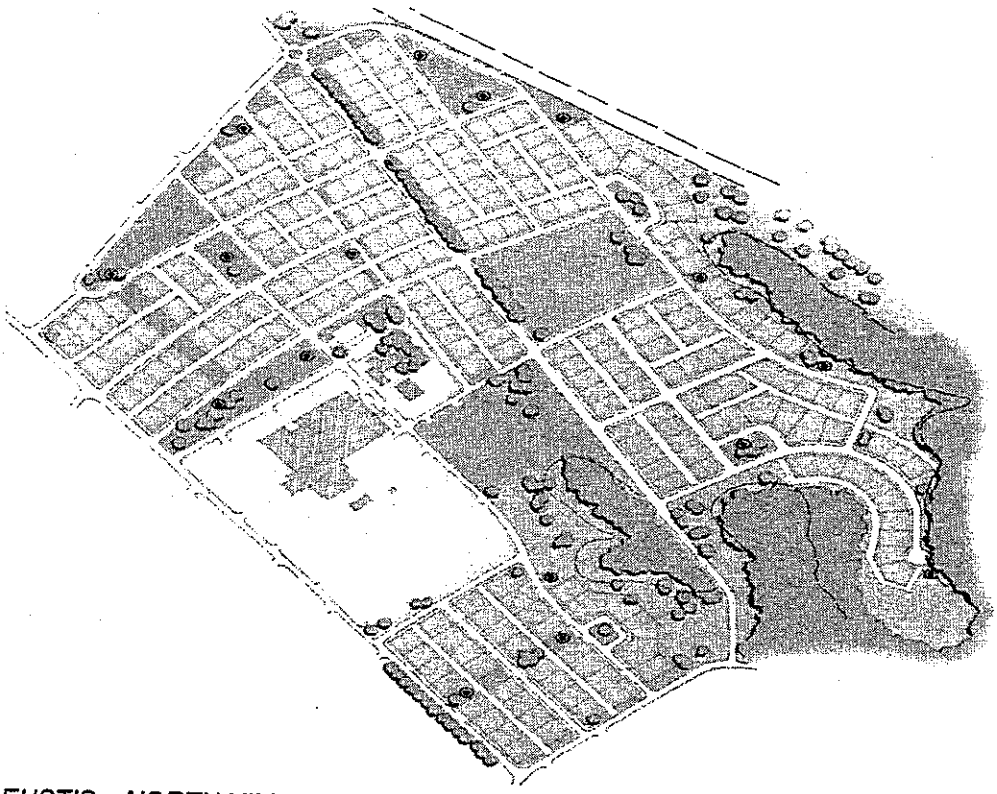
Landscaping in the family housing areas will be informal in design and easy to maintain. Plantings will be concentrated in the front of the house especially around the front door. Small flowering tress and shrubs planted in front of the house will provide scale and visual interest.

2) Community Character

The military communities at Fort Eustis will be built around the dominant theme of rank segregation through separate communities and through various street, landscaping and green-space separation.

North Village

The North Village will house 464 (E1-E5) enlisted families. This will be 45% of all of the housing located at Fort Eustis. The enlisted family will live in the Warwick and the Jefferson townhome units that will have 3 and 4 bedroom options, with various amenities. At the



FORT EUSTIS – NORTH VILLAGE PLAN

epicenter of the North Village, a neighborhood center will be built to facilitate programs or support current programs for the base and the North Village. *Detailed descriptions of the Neighborhood Centers can be found in the Community Amenities Development Plan.*

North Village Housing Streetscape.

Along Sternburg Road, J.A. Jones will develop the road system to facilitate smaller volumes of traffic. By providing on street parking and slower speed designs, using additional traffic stops signs, families can feel free to walk across the streets to their neighbor's home or to neighborhood playgrounds.

Each of the secondary and tertiary roads will lead the residents to Murphy Field, for sports activities, parades and leisure activities. In spring of 2003 work will begin on a new access road that will create a new primary road into Madison Ave. The North Village will be shielded from the increase of traffic by natural buffers along Madison Ave.

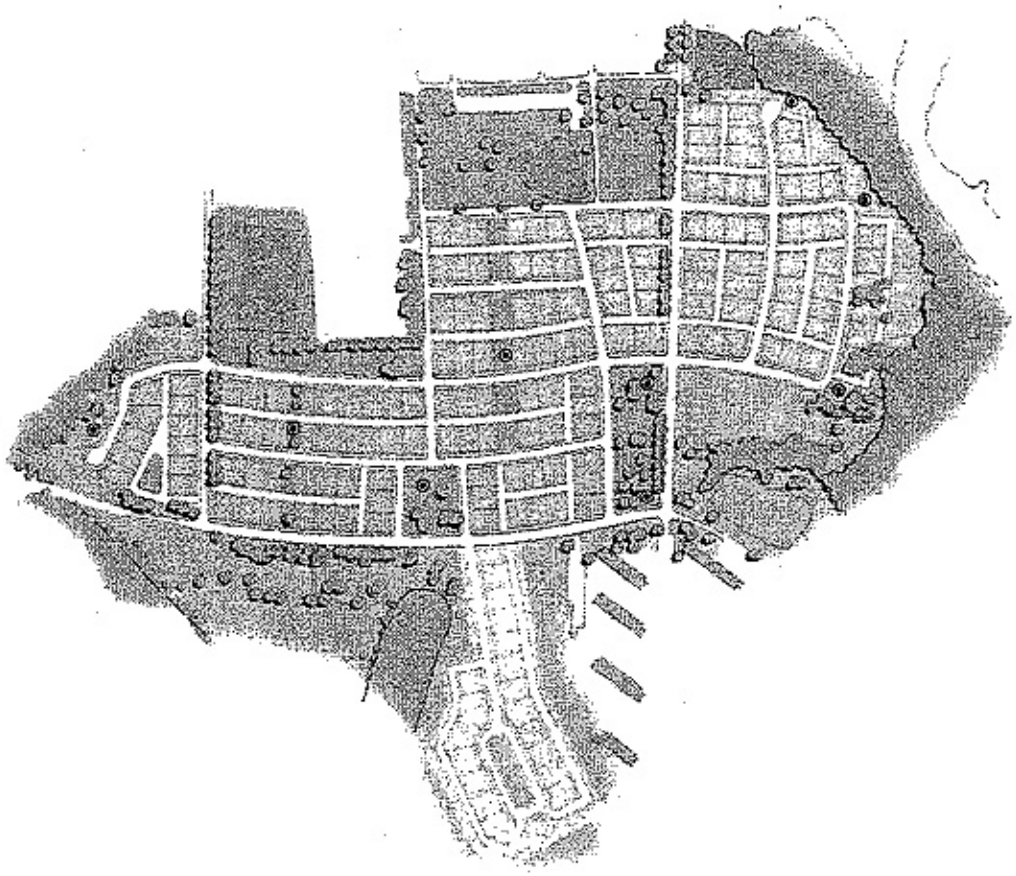
City of Newport News will complete a new elementary school that will support the North Village Neighborhood. Our neighborhood designs and segregation put the families with the smallest children closest to the elementary school, which will enable those parents to walk their kids to school from a very short distance and also utilize the Child Development Center, and Community Counseling Center.

McDonald Army Community Hospital is one of three service hospitals in the Tidewater area of Virginia. Everyone in the North Village will be within a 5-minute walk for managed care for their families

South Village

The South Village will have a combination of 100 (E1-E5) enlisted families and 206 (E6-E8) enlisted families. The housing in this neighborhood will be the same as the North Village but will have a different color scheme and theme.

A natural vista enframed and accentuated by tree lined streets will lead you from a open space green to a neighborhood center located across from the sand pool. This neighborhood center will be a support facility for the main activities that will go on during the summer at the sand pool. The enlisted and junior enlisted families will be separated by Patton Ave and additional trees and landscaping, that will give each rank a sense of separation.



FORT EUSTIS – SOUTH VILLAGE

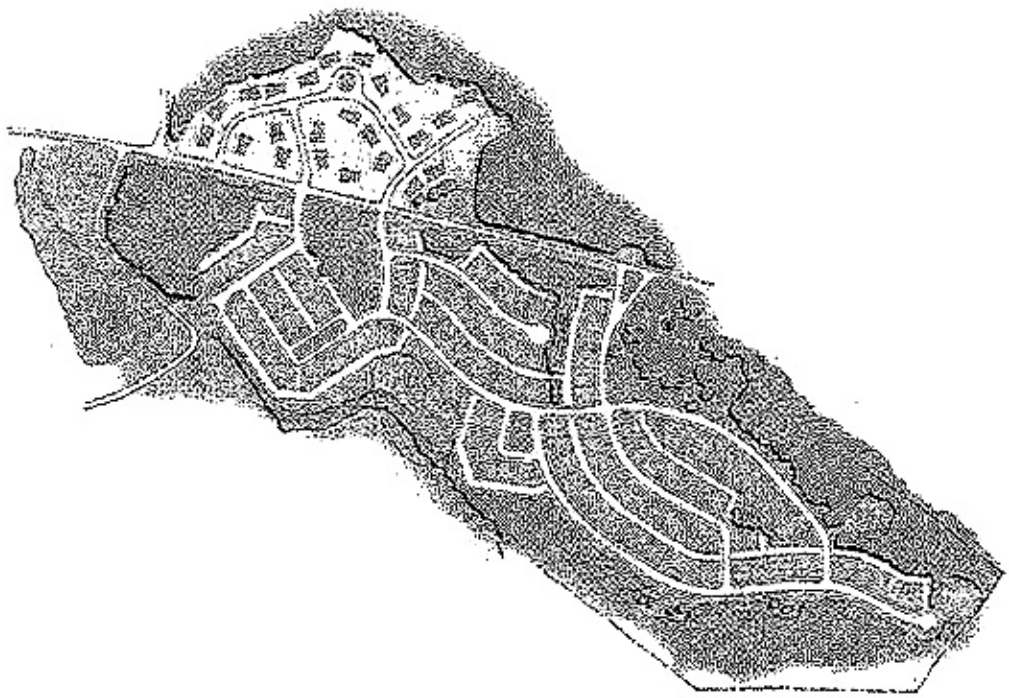
The South Village will be surrounded by dense forest and thriving river systems. Several green areas and open spaces will be linked by a network of walkways and streets, which will add to the value of the living experience in this neighborhood. Pershing Ave will serves as a secondary road that will provide traffic movement between primary and tertiary roads. Pershing will be turned into a boulevard with a grass median that will create a scenic ride or view for pedestrians and vehicular movement.

Enlisted and Junior Enlisted families will be able to experience a variety of services and amenities that will be a within walking distance of their home. The

new elementary school, hospital, Community Counseling center will be within 2 to 5 minutes from their homes.

South Village (Officers)

The South Village (Officers) will have 64 (W1-O3) families and 52 (W4-O5, O6, and O7) Families. This housing community will be strictly for the officers with prime views to the Warwick river with spacious yards and wooded lots. The South Village (Officers) will separate the Company Grade Officers into townhome housing and the Senior NCO and Field Grade Officers into single-family units.



FORT EUSTIS – SOUTH VILLAGE (OFFICERS)

The Field Grade officer housing will use heavier Williamsburgh/Colonial themes utilizing more brick accent and homes surrounded by heavy wooded vegetation.

b. The Communities of Fort Monroe

Fort Monroe will have (2) two housing areas that will be located in the South and North sections of the installation. Fort Monroe's housing will be located generally along the bayside of the Chesapeake Bay.

TABLE – HOUSING INVENTORY

	E1-E5	E6-E8	01-03; W1-W3	O4-O5; E9; W4-W5	O6+	TOTAL
North Village	0	0	20	0	0	20
South Village A	0	0	0	34	0	34
South Village B	0	0	0	34	0	34
TOTAL	**0**	**0**	**20**	**68**	**0**	**88**

1) Housing Description

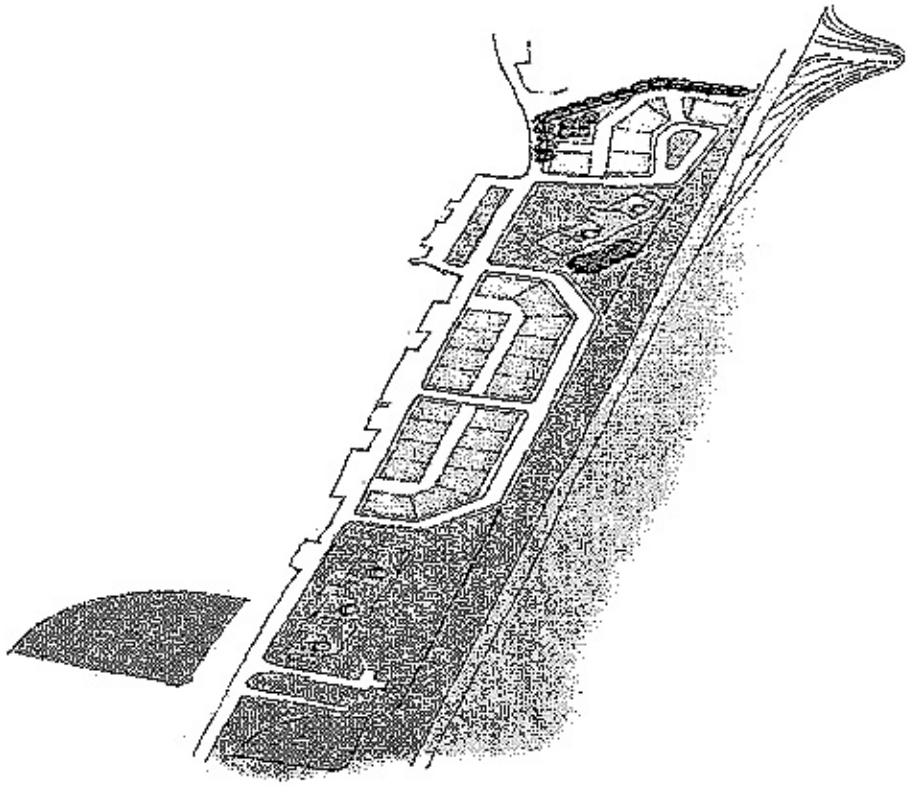
Fort Monroe will have 88 new town-homes reflecting and complimenting the architectural environment of the existing historic homes at Fort Monroe. The homes will have positive characteristics such as detailed roof types, fenestration, and detailed trim.

To achieve flood protection the new structures will be 3 level townhomes that have alley loaded entry garages on the first floor, common space areas (such as living room, dining room and kitchen) on the second floor, and sleeping quarters on the third floor. North and south Village is located within walking distance of the Post Exchange, child care center, bowling center, thrift shop, and physical fitness facility.

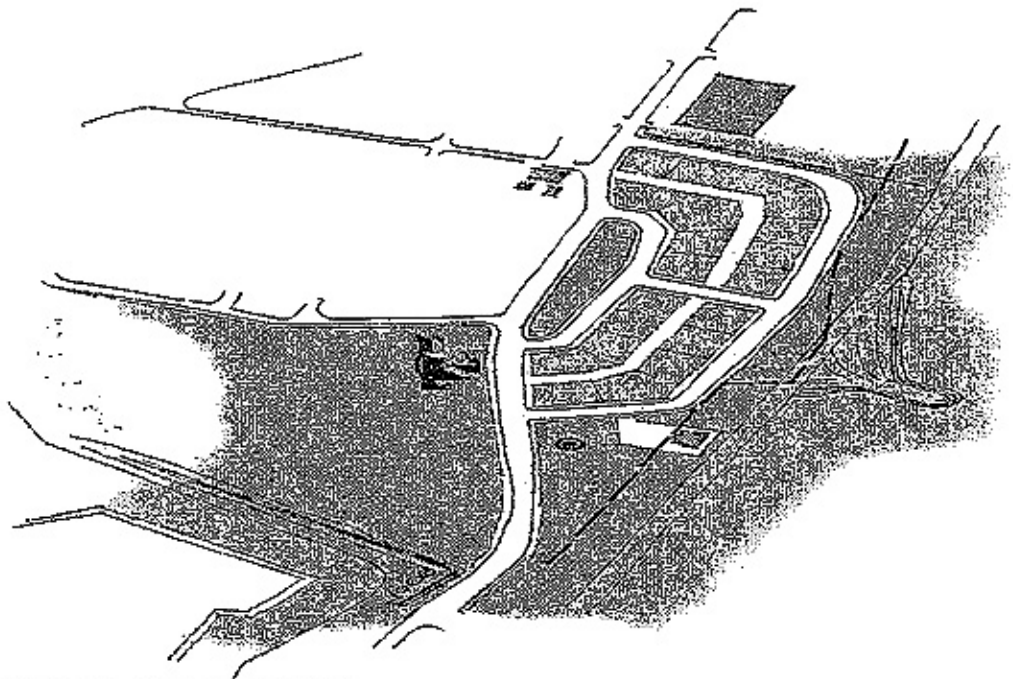
2) Community Character

The new housing communities at Fort Monroe will foster a positive command climate, that will promote human relations in a safe environment, while preserving and taking advantage of the natural views within the Chesapeake Bay.

At Fort Monroe their will be no set rank separation for the Senior NCO, Company Grade and Field Grade Officer. Due to the house design and availability of land for Fort Monroe the officers will be placed in a 3 or 4 bedroom townhome. The townhomes that are located nearest to the bay will be given to the priority Field Grade Officers.



FORT MONROE – NORTH VILLAGE



FORT MONROE – SOUTH VILLAGE

c. The Communities of Fort Story

Fort Story Family Housing will have (2) two new neighborhoods, each containing its own identity through different housing types and rank structure.

TABLE-HOUSING INVENTORY

	E1-E5	E6-E8	O1-O3; W1-W3	O4-O5; E9; W4-W5	O6+	TOTAL
CAPE HART VILLAGE	183	52	7	0	0	242
OFFICER ROW	0	0	0	7	0	7
TOTAL	**183**	**52**	**7**	**7**	**0**	**249**

* Does not include one Cape Hart house, which will be renovated.

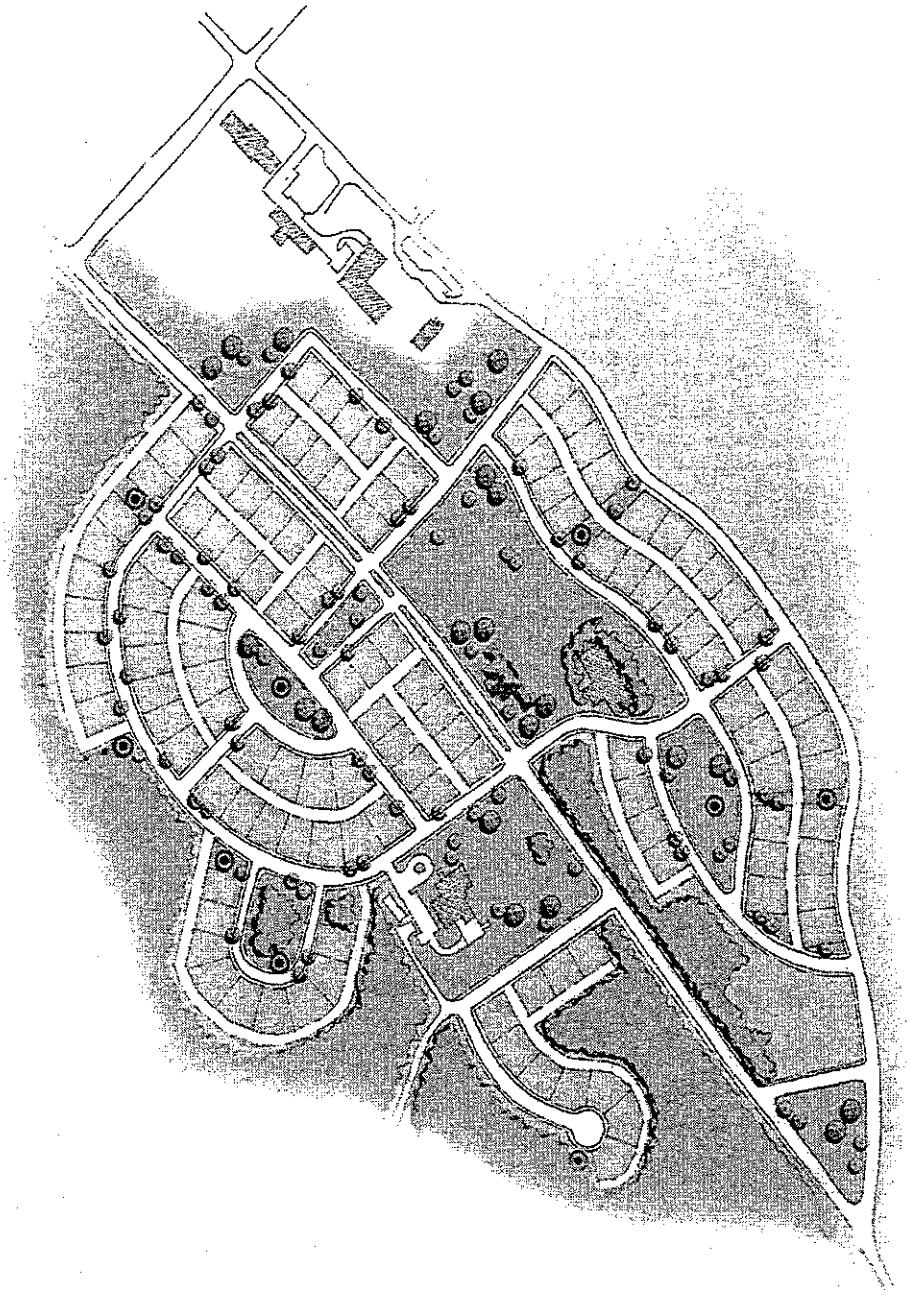
1) Housing Description

Cape Hart Village and Officers Row will have 244 new townhomes and 5 single-family homes. The large townhome units will be similar to the duplex units located at Fort Eustis. The families who live in the townhome units will feel as though the live in a single-family home. The single family homes for the officers will create historical character that will compliment the Cape Hart House located on Atlantic Ave. The character of the housing will be a contemporary reflection of the traditional neighborhood found in Virginia Beach. The density of the housing will be similar to the homes found in and around Virginia Beach.

Cape Hart Housing

The housing in Cape Hart Village will comprise of 244 new townhome units. These units will be 500 to 600 square feet larger than the current existing housing located in Cape Hart Village.

The homes will have rear-entry garages, porches, and various interior and exterior amenities.



FORT STORY – NEW CAPE HART VILLAGE

4. OPEN SPACE AND CIRCULATION FRAMEWORK

a. Fort Eustis

Fort Eustis has a strong circulation framework in currently in place. The new development for each of the communities will be designed to tier off of this system, working with to both create well connected neighborhoods and to generally improve mobility on post.

The post has a highly desirable collection of existing community amenities including parks, recreation areas, conveniently located shopping areas, schools and resident services. In addition to being recognized as features to be protected, Fort Eustis has will have attractive neighborhood amenities through the existing open spaces and greens and views of rivers and creeks that provide attractive vistas. The new neighborhoods will be developed to maximize this potential benefit, both from the public realm (streets or parks) or from individual homes.

Although some terrain at Fort Eustis is not well suited for development, some of the more gentle terrain will help shape interesting neighborhoods by influencing the placement of roadways and homes.

b. Fort Monroe

Fort Monroe's existing neighborhoods lie in relatively flat, accessible, and in reasonably close proximity to community amenities. To create distinctive and cohesive neighborhoods, J.A. Jones Community Development will design the residential neighborhood as a "whole" place, which would take better advantage of the setting, and create a much more attractive and desirable neighborhood.

c. Fort Story

The large neighborhood found at Fort Story is generally nondescript, and somewhat uninviting, despite its highly attractive surroundings. As a result of this process, a new residential neighborhood will be designed as a "whole" place which will take better advantage of the open space framework and create a much more desirable neighborhood.

5. RECREATION AND AMENITIES

Each of the installations will have various recreational opportunities and amenities that they will be able to use and enjoy. As part of our overall program,

J.A. Jones will provide playgrounds, tot lots, sports courts, tennis courts, and neighborhood centers. These amenities will be located in areas that provide open space for team activities and shaded spaces for playgrounds and picnic areas. (See Tables 1,2 & 3)

Table 1

Fort Eustis	
Summary of Amenities	**Quantity**
Tot Lots	22
Playgrounds	17
Sports Courts	5
Tennis Courts	3
Pool	1
Volleyball Courts	1
Parks and Green Spaces	10

Table 2

Fort Monroe	
Summary of Amenities	**Quantitiy**
Tot Lots	5
Playgrounds	4
Sports Courts	1
Tennis Courts	1
Parks and Green Spaces	2

Table 3

Fort Story	
Summary of Amenities	**Quantity**
Tot Lots	6
Playgrounds	4
Sports Courts	1
Tennis Courts	1
Parks and Greens	3

6. BEDROOM PROFILES

The new homes for Fort Eustis, Fort Monroe, and Fort Story will be larger than the existing Army Housing. The homes will be neo-classical, functional, spacious, and safe. A mixture of three-bedroom, four-bedroom, and five-bedroom homes will be developed. There will be no two-bedroom units constructed for any of the three military installations. The average home is 1,700 square feet.

TABLE 1 Fort Eustis

GRADE	HOME TYPE	3 Bedroom	4 Bedroom	5 Bedroom	Total
E1-E5	Duplex	322	242	0	564
E6-E8	Duplex	126	80	0	206
O1-O3; W1-W3	Duplex	36	16	0	52
O4-O5; E9; W4-W5	Single Family	29	12	0	41
O6	Single Family	0	9	0	9
O7 AND UP	Single Family	0	0	2	2
TOTAL		**513**	**359**	**2**	**874**

TABLE 2– FORT MONROE

GRADE	HOME TYPE	3 Bedroom	4 Bedroom	5 Bedroom	Total
E1-E5					
E6-E8					
O1-O3; W1-W3	Townhome	20	0	0	20
O4-O5; E9; W4-W5	Townhome	39	29	0	68
O6					
O7 AND UP					
TOTAL		**59**	**29**	**0**	**88**

TABLE 3– FORT STORY

GRADE	HOME TYPE	3 Bedroom	4 Bedroom	5 Bedroom	Total
E1-E5	Duplex	128	56	0	184
E6-E8	Duplex	38	16	0	54
O1-03; W1-W3	Duplex	4	2	0	6

O4-O5; E9; W4-W5	Single Family	0	5	0	5
O6	Single Family				
O7 AND UP	Single Family				
TOTAL		**170**	**79**	**0**	**249**

In our preparation to develop the best home design, J.A. Jones in collaboration with the Army organized Focus Group Meetings, where residents where chosen to sit in on a presentation on the proposed housing for each of the installations. We used the following data to provide the **"The Best Overall Home Plan"** for all ranks and families:

7. EXPANDED LIVING SPACE

The average square footage of the new homes will be 500 to 600 square feet larger than the existing homes. The enlisted and junior enlisted 3 bedroom and 4 bedroom will be similar in size but will have different amenity packages. The company grade duplex three bedroom and four bedroom will be 100 to 150 square feet larger than the enlisted but will have a distinctive floor plan and amenity package.

The Field Grade single-family homes will have distinctive exterior facades and side loaded garages in certain communities. Two car garages will be provided with additional two car parking or parallel parking behind each garage to accommodate families with more than 2 cars. J.A. Jones will provide in certain situations, additional parking pads beside the homes for additional resident parking. Parallel street parking will be provided for visitors.

Homes at Fort Eustis and Fort Story will have front, side and private backyards. Fort Monroe will have front, side and deck patio's on the second floor.

Additional storage will be built on the exterior of the garage for lawn equipment, in the interior of the garage, under the stairs and in the kitchen. The average storage space for all the homes will be approximately 220 square feet.

All the units will have 2 ½ bathrooms, except for the Field Grade, which will have 3 bedrooms and the Senior Grade will have 3 ½ bathrooms.

8. AMENITIES AND FINISHES

Substantial amenities and finishes will be used to highlight the spacious and functional floor plans, and various exterior facades. Amenities, Interior Finishes and Exterior finishes included in the homes for each rank class will increase as the rank increases. Specific amenities that may be included in the homes include:

9. FOCUS GROUP PRIORITIES

a. Fort Eustis

1. Washer/Dryer's included in the units
2. Large patio's with covers (a roof of some sort)
3. More closet space/depth
4. Shower room/mudroom downstairs
5. No carpet in the dining room

b. Fort Monroe

1. Additional Storage
2. His and Her Closets in Master Bedroom
3. Hard surface floor for first floor or at least in the eating areas
4. 2 entry doors on the front of the townhome
5. Large Kitchens

c. Fort Story

1. Additional Garage Storage
1. Provide pantry closet for kitchen
2. Additional Storage
3. Laundry downstairs
4. His and Hers closets in master bedroom

10. ENVIRONMENTAL STEWARDSHIP

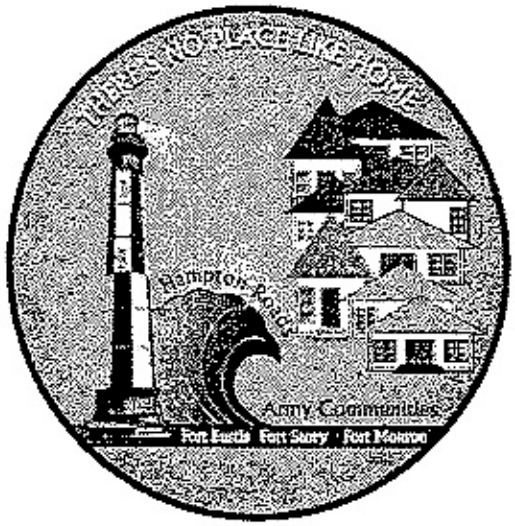
J.A. Jones enthusiastically embraces the practice of environmental stewardship and embraces the opportunity to work on the Island of Oahu. Our care of the environment will begin during the CDMP with environmental due diligence, a core component of our planning and design effort. It is our experience that if environmental practices are incorporated into the design, it will be executed. The post-environmental staff will consulted with and involved in our planning and design process.

Our ability to foster stewardship is in every phase of this project beginning with land planning, civil design, and then construction mobilization where our work force will be encouraged to car pool. During demolition, the Contractor will focus on conservation of natural resources, preserving old growth trees and minimizing existing vegetation disturbance to the greatest practical, extent. To minimize the amount of materials to be land filled, J.A. Jones will reconstitute salvage material

for use as construction material, i.e.: grinding to use as sub base for roads, and giving recycle operators the opportunity to collect recyclable salvage material before disposal.

Through the construction phase, the Project Director in conjunction with the construction project manager will work closely with the DPW and environmental staff to assure that all environmental regulation and requirements are met or exceeded. The engineer will focus particularly in developing a SWPPP for use during the construction phase. A thorough assessment of applicable laws and regulations will be accomplished to assure regulatory conformance. J.A. Jones will implement stringent pollution prevention measures to prevent chemical or liquids mixing with surface runoff. J.A. Jones will host regular meetings to inform the command and to discuss all pertinent environmental issues at each installation.

The J.A. Jones maintenance and housing team will involve the residents in promoting environmental awareness, outdoor activities promoting beautification and environmental area improvement. To control the incidence of airborne pests and termites, we will have an Entomologist assigned to assure that the community building operations are in keeping with pest control programs.



CDMP
Fort Eustis, Fort Monroe and Fort Story

Volume II: Development Plan
Section F: Construction Plan

Prepared by:

J.A. JONES

1. INTRODUCTION

a. Purpose

The purpose of this document is to clearly outline the new construction and demolition process at Fort Eustis, Story and Monroe.

b. Overview

The overview is intended to give an idea of the rational and potential sequencing of construction and demolition, recognizing that the CDMP is a dynamic process which will change and evolve even as construction proceeds. The demolition process involves abatement of hazardous material such as lead and asbestos. J. A. Jones would like to recycle debris where possible. The economic feasibility evaluation of recycling demolition debris is currently underway.

1) Fort Eustis

J.A. Jones' proposal for the reconstruction of Fort Eustis consists of virtually complete replacement of all housing at the post. The only area to remain and be renovated is Antwerp Village at Fort Eustis. This area consists of 23 single-family homes in their own distinct neighborhood. Several factors influenced the development process, which includes: open available land, maximizing available units, minimizing disruptions to residents and minimizing construction and demolition durations. The process critical path is set by a "finish-start" relationship set when resident must be moved out of units, the units demolished and new units built on the same ground. The Demo-Construction process is further made complex by the necessity to maintain segregation between grade groups and to have a stable inventory of homes available for each grade. The process is further complicated by the unavailability of raw land. The beginning state of 874 units will increase to 897 in its final state, for an addition of 23 units. Overall construction will last 6.5 years with demolition occurring in all years that construction occurs.

2) Fort Monroe

Fort Monroe has 205 existing Wherry Homes all of which are proposed for demolition. In their place 88 new homes will be constructed for an overall reduction of 116 homes at the Post. The construction and demolition process will be a "finish-start" operation which as 4 demolition periods and 3 new construction phases. Overall construction will last 37 month beginning within 14 months of the initial construction start at Eustis.

3) Fort Story

Fort Story does not have the complexities of other posts. Fort Story will have all of the 249 existing houses replaced in the construction term. Open land exists for 106 new homes to be built before any of the existing housing is demolished. The remaining 143 homes will be built on the land formerly occupied by the Capehart land. Overall construction will last 19-25 months and is proposed to start once concurrently with Fort Eustis.

2. INITIAL DEVELOPMENT PHASE

a. Fort Eustis

North Village

The plan derived during the CDMP process consists of starting construction on previously demolished land known as Inchon Village now known as the North Village. The homes were demolished a number of years ago leaving the entire infrastructure in place. Upon mobilization, after February 2004, all roads and utilities will be demolished and new construction begun. All of the homes in this area will consist of grades E1-E5. Approximately ten (10) months after commencement the first units will be made available for occupancy at an average rate of 20-30 per month. When 213 units are delivered (approximately September 2005) all remaining occupants of Inchon Village will be relocated to the new homes in the new North Village and the demo begun. It is anticipated that by August 2005 the final phase of the North Village will be underway completing in September 2006. The total number of units in this area is 464, 232 three bedrooms and 232 4-bedroom town homes.

NEW CONSTRUCTION INVENTORY- FORT EUSTIS

NORTH VILLAGE Military Classification	NO. OF UNITS	BEDROOMS	BATHROOMS	SQUARE FOOTAGE	UNIT TYPE	FLOOR PLAN	NO. OF LOTS	LOT SIZE
E1-E5	232	3	2 1/2	1524	DUPLEX	A3	116	70 X 95
	232	4	2 1/2	1579	DUPLEX	A4	116	70 X 95
TOTAL UNITS	464						232	
E6 - E8	0	3	2 1/2	1579	DUPLEX	A3	0	70 X 95
	0	4	2 1/2	1624	DUPLEX	A4	0	70 X 95
TOTAL UNITS	0						0	
NORTH VILLAGE TOTAL	464				TOTAL # OF LOTS		232	

Okinawa Village

October of 2006 will allow approximately 172 units of Okinawa Village to be demolished. A feasibility study needs to be done to determine if the utilities and common systems can be segregated to allow for this partial demolition. ***This area may begin phasing demolition at an early date to relocate E1-E5 families into new housing.***

South Village- Officers Section

Homes in this section are duplex and single family homes and will accommodate W1-W5, O1-O5, O6, O7 and up as well as E9. Construction in this area will begin with construction of 69 new homes. Construction is anticipated to start in November of 2005 with the first units available in May 2006. In this same month Phase 2 of this area would begin, consisting of demolishing the existing 39 units of Antwerp Village and constructing 35 new units in their place. Construction for this area would be completed by April of 2007.

S.VILLAGE - OFFICERS Military Classification	NO. OF UNITS	BEDROOMS	BATHROOMS	SQUARE FOOTAGE	UNIT TYPE	FLOOR PLAN	NO. OF LOTS	LOT SIZE
W1-O3	36	3	2 1/2	1679	DUPLEX	B3	13	70 X 95
	16	4	2 1/2	1722	DUPLEX	B4	8	70 X 95
TOTAL UNITS	**52**						**21**	
O4-O5; E9 W4-W5	29	3	2 1/2	1803	SINGLE FAMILY	B3	29	80 X 80
	12	4	2 1/2	1955	SINGLE FAMILY	B4	12	80 X 80
TOTAL UNITS	**41**						**41**	
O6								
	9	4	3 1/2	2655	SINGLE FAMILY	C4	9	80 X 100
TOTAL UNITS	**9**						**9**	
O7 and Up								
	2	5	3 1/2	3000+	SINGLE FAMILY	D5	2	As Required
TOTAL UNITS	**2**						**2**	
S. VILLAGE TOTAL UNITS	**104**				**TOTAL # OF LOTS**		**73**	

New South Village

This new neighborhood consists of the area occupied by the former Villages of LeHavre, Marseilles, Cherbourge, and St. Nazaire. The end state of the neighborhood will be 304 units; 100 E1-E5 and 206 E6-E8.

There is now sufficient inventory of Officers Quarters to demolish the 60 units formerly known as LeHavre Village and reconstruct 100 units for E1-E5 ranks. Construction would begin in June of 2007, with the first units available in February of 2008.

One hundred of the remaining units of Okinawa Village can be relocated to the New South Village and the vacant units can be demolished.

The existing residents of Cherbourge Village may be relocated and demolition from August 2005 through February 2006. The reconstruction process would begin in March 2006 with the first units available for occupancy in January 2007. This neighborhood and all of the near term construction is completed in May 2007.

By September 2007 all of the residents of Marseilles Village can be relocated and Marseilles can be demolished. Construction of 88 E1-E5 will begin. The first units will be available in March 2008 and the phase will be complete in September 2008.

The remaining 88 units left occupied in Okinawa Village can now be demolished. The occupant so St. Nazaire can now be relocated, 5 to move to the North Village and 7 to the South Village.

Final Demolition

The last months, month 60-66, will see the demolition of St. Nazaire, the Cottages and the 23 units of Newport Village.

SOUTH VILLAGE Military Classification	NO. OF UNITS	BEDROOMS	BATHROOMS	SQUARE FOOTAGE	UNIT TYPE	FLOOR PLAN	NO. OF LOTS	LOT SIZE
E1-E5	90	3	2 1/2	1524	DUPLEX	A3	45	70 X 95
	10	4	2 1/2	1579	DUPLEX	A4	5	70 X 95
TOTAL UNITS	100						50	
E6 - E8	126	3	2 1/2	1579	DUPLEX	A3	63	70 X 95
	80	4	2 1/2	1624	DUPLEX	A4	40	70 X 95
TOTAL UNITS	206						103	
NORTH VILLAGE TOTAL	306				TOTAL # OF LOTS		153	

b. Fort Monroe

The plan for the revitalization of Fort Monroe developed during the CDMP consists of construction in three distinct phases and demolition in four. The first phase involves demolishing 68 units in the Southern most Wherry Housing area beginning March 2005 and completing in 36-48 months. 40 new homes would be constructed in the same location beginning April 2004 and would be ready for occupancy in February 2006 and completed April 2006.

The occupants of "Area B" would then be moved into the new housing in "Area A" and 60 additional units would be demolished May and June 2006. In June 2006 Construction would begin with 40 units available for occupancy in April and May of 2007.

In June 2007 20 of the Northern Most units will be demolished with 19 units constructed in their place. Construction would begin in July 2007 and be completed in June 2008.

The final phase of construction will demolish the remaining 57 units and begins in June 2008 and finishes in August 2008.

NEW CONSTRUCTION INVENTORY - FORT MONROE

NORTH VILLAGE Military Classification	NO. OF UNITS	BEDROOMS	BATHROOMS	SQUARE FOOTAGE	UNIT TYPE	FLOOR PLAN	NO. OF LOTS	LOT SIZE
O1 - O3	20	3	2 1/2		DUPLEX	F3	9	70 X 70
	0	4	2 1/2		DUPLEX	F4	0	
TOTAL UNITS	20						9	
NORTH VILLAGE TOTAL	20						9	

SOUTH VILLAGE Military Classification	NO. OF UNITS	NO. OF BEDROOMS	NO. OF BATHROOMS	SQUARE FOOTAGE	UNIT TYPE	FLOOR PLAN	NO. OF LOTS	LOT SIZE
E9	8	3	2 1/2		DUPLEX	F3	4	70 X 70
	6	4	3 1/2		DUPLEX	F4	3	70 X 70
TOTAL UNITS	14						7	
O4 & O5	28	3	2 1/2		DUPLEX	F3	14	70 X 70

	26	4	3 1/2		DUPLEX	F4	13	70 X 70
TOTAL UNITS	54						27	
O7 and Up	0							
	0							
TOTAL UNITS	0							
END STATE TOTAL	68				TOTAL # OF LOTS		34	

FORT MONROE SUMMARY

TOTAL UNITS	88	END STATE TOTAL LOTS	44
RENOVATED UNITS	0		
END STATE TOTAL	88		

c. Fort Story

Approximately four months after the commencement of work at Fort Eustis construction will begin on the open land at Fort Story, with the construction of 96 new townhouse style units. Start date for construction will be April 2004 and will be ready for occupancy February 2005 and will be completed by August 2005. Residents will then be moved from the Cape Hart homes and they will be demolished starting in March 2005. Demolition will occur in two phases and will be completed by March of 2006. Construction will closely follow each of the demolition phases. The four units that will be placed by the Garrison Commander's home (Need Street name) will be built during the term of this construction. The 13 Historic homes can be demolished after April 2006.

NEW CONSTRUCTION INVENTORY - FORT STORY

CAPE HART VILLAGE Military Classification	NO. OF UNITS	BEDROOMS	BATHROOMS	SQUARE FOOTAGE	UNIT TYPE	FLOOR PLAN	NO. OF LOTS	LOT SIZE
E1-E5	127	3	2	1524	DUPLEX	A3	64	70 X 95
	56	4	2 1/2	1579	DUPLEX	A4	28	70 X 95
TOTAL UNITS	183						92	
E6-E8	37	3	2	1579	DUPLEX	A3	19	70 X 95

	15	4	2 1/2	1624	DUPLEX	A4	8	70 X 95
TOTAL UNITS	52						27	
O1-O3	5	3	2	1679	DUPLEX	A3	2	70 X 95
W1-W3	2	4	2 1/2	1722	DUPLEX	A4	1	80 X 80
TOTAL UNITS	7						3	
CAPE HART TOTAL UNITS	242				TOTAL # OF LOTS		122	

OFFICERS QUARTERS Military Classification	NO. OF UNITS	BEDROOMS	BATHROOMS	SQUARE FOOTAGE	UNIT TYPE	FLOOR PLAN	NO. OF LOTS	LOT SIZE
O4-05; E9								
	7	4	3 1/2	1955	SINGLE FAMILY	B4	5	60 X 80
TOTAL UNITS	7						5	
O6								
TOTAL UNITS	0						0	
OFFICERS TOTAL UNITS	7						5	

d. Schedule

Fort Eustis	Feb 2004 – Dec 2009
Fort Monroe	Aug 2004 – Feb 2008
Fort Story	Feb 2004 – Jan 2008

3. CONSTRUCTION ASSUMPTIONS

Assumptions made for the estimate for Ft Eustis, Story & Monroe – April 24, 2003

These assumptions are for standard units.

a. Division 02000 – Earthwork

- It is assumed the grade will not change significantly at any location.
- Sites will assume to be balanced (i.e., no import or export of soils is anticipated). ***Further investigation will be done to determine this.***
- It is assumed that all soil is viable structural fill suitable for all requirements on the project (i.e., buildings and utilities). ***Further investigation will be done to determine this.***
- A moderate amount of topsoil has been assumed on each site (i.e., around 6 inches).
- It is assumed that existing utilities within site boundaries will be either abandoned in place properly (slurry filled) or removed at the discretion of Construction. This will follow local standards and be dependent on cost. ***Further investigation will be done to determine this.***
- It is assumed the only items that will be encountered for demolition are either visible at present or are on the existing site plans. ***Further investigation will be done to determine the existing conditions.***
- It is assumed that there is a moderate amount of abatement required (i.e., asbestos and lead paint). This means that there has been no provision for replacement of soils due to contamination, asbestos water or steam pipes, drywall / plaster with asbestos in it or lead paint running throughout the units encapsulated under other paint.
- The wet utility work presents the following concerns based on the existing utility drawings.
    - All sanitary lines are gravity feed; therefore, no provisions have been made for lift stations or force main pipe. Most of the existing sanitary lines appear to be either clay or force main, which both present financial concerns. ***Huitt-Zollars will complete a utility survey to locate the existing utilities.***
        - Clay is what condition it might be in and is it viable to tie into?
        - Force main is with the redesign of the current loads on the systems. Is the existing system capable of handling the new loads?
        - If new lift stations are required will they be our responsibility or base DPW responsibility? In either case, will radio monitoring be required, size of the system, etc.

  - Water and sanitary lines are all plastic with limited metal fittings in each area, minimal need for cathodic protection and only concern for tracer wire.
  - It is assumed water pressure will be adequate for all needs for the houses, no pressure reducing valves required. ***Further Investigation will be done to determine the pressure requirements.***
  - Water services will be assumed to be installed between the sidewalk and units in a looped system.
  - Storm was designed to minimize pipe; this was done by adding ponds and using bio-swales. When pipe was used corrugated metal or plastic was used in lieu of concrete pipe used when possible.
  - Paving was six inches of asphalt installed in 2 lifts, one 4 ½" and the topping at 1 ½". This included no sub-base or stabilization of any kind.
  - Curb and gutter is the roll over type to minimize repairs at later date.
- It is assumed that wet utility tie-in will be at the boundaries of each area. It is further assumed the utility is adequate to handle the new loads on the system. ***Further investigation will be done to determine the requirement..***
- No provisions have been made for relocation of existing site utilities that are required for other base operations. ***Further investigation will be don to determine the requirement.***
- Minor provision for site dewatering has been made.
- No provision is provided for regarding yard drains. It is assumed that positive drainage can be obtained by grading around units.
- It is assumed that the utility privatization contractor will provide the electrical distribution. This will be done to a location within five feet of each new building constructed (i.e., primary and secondary power is ran by the utility provider).
- Allowances have been made to provide an upgraded street light fixture similar to that at Carson.
- No gas distribution is provided for on the project.
- Standard soil treatment for termites is assumed, no baiting
- Landscaping is provided for as an allowance at $3,000 for townhouses and $5,000 for single-family houses.
- Sidewalks are assumed to be 4 feet wide 4 inches thick at of 3,000-psi fibermesh concrete. The length of sidewalk is assumed along the front of each unit with spacing between units at 20 feet. There is a 30% factor added to this length for common areas. No gravel sub-based is provided for.
- Driveway material is assumed out of the same strength concrete as sidewalks but 6 inches thick. Driveway set back is assumed at 25 feet at

a width along this entire length of 15 feet. No gravel sub-based is provided for.

b. Division 03000 – Concrete

- Post tension slab on grade has been assumed for foundation systems.
- It is assumed that the concrete subcontractor will have authority to provide foundation design alternative from a registered structural engineer.
- Slab thickness is assumed at 4 inches with 3,000-psi concrete with six-inch gravel sub-base and 10-mil plastic barrier.
- Footings are assumed to be 24 inches deep and 10 to 12 inches wide with no perimeter insulation.
- Thickened slabs are assumed to be approximately 12 inches wide and 8 to 10 inches thick at perimeter and bearing walls throughout units.

c. Division 04000 – Masonry

- Masonry is only assumed in the front of the units. The amount for each unit is assumed as a 3 to 4 foot high wainscoting only. This amount of brick can be adjusted to an equivalent square footage dependent on final design. ***At Fort Monroe there will be some further investigation on brick for the front façade of the homes.***
- Standard brick colors have been assumed with gray mortar and cove joints.
- Queen size brick has been assumed in pricing.

d. Division 05000 – Metals

- No metals are assumed in the design for either ornamental or structural requirements.

e. Division 06000 – Woods and Plastics

- It is assumed that truss manufacturer will be able to provide alternate design to accommodate both mechanical and structural requirements of the units with a registered engineer stamp.
- It is assumed that the floor system will be 18-inch open web trusses.
- Roof pitches are assumed at between 4 and 6 / 12.
- It is assumed that furr downs will be kept to a minimum, primarily over the kitchen cabinets.
- It is assumed the first floor will have 9-foot ceilings and second floor will have 8-foot ceilings.

- Majority of exterior siding material is assumed to be Hardie material; this includes siding, trim, soffit and panels.
- Hardie is assumed to have seven-inch reveal with Hardie shingle accents.
- It is assumed that house wrap material will be used on all units
- Trim is assumed in the following locations:
    - Casing on all doors and as window aprons
    - Base in all rooms
    - Crown in dining and living rooms
    - Chair rail on one wall in dining room
    - Wood window sills
- Standard apartment grade trim is assumed in the previously mentioned rooms to include 2 ¼" casing, 3 ¼" base, 2 5/8" chair rail, 5 ¼" windowsills and 4" crown.
- Stairway is assumed to meet Life Safety Code with no more than 7 ½" rise and 10 inch run minimum. There is no open ornamental railing assumed for this location.

f. Division 07000 – Thermal and Moisture Protection

- Insulation is assumed in the following locations:
    - Exterior walls R-15 batt
    - Attic R-30 blown
    - Unless along conditioned space garage is not anticipated to be insulated
    - Party wall R-11 batt
    - Between floors at hard floor areas R-11 batt
    - 2nd floor locations that do not have conditioned space below R-19 batt
- 30 year dimensional shingles are assumed for roofing
- The entire building is anticipated to be guttered.

g. Division 08000 – Doors and Windows

- Split jambs are assumed for all interior hollow core doors
- Entry and Garage to Unit metal doors are assumed to be 20 minute rated with spring hinges. Entry door is assumed with single side lite.
- Patio door is assumed to be metal French single leaf door.
- Door hardware is assumed to be Kwikset Tylo or equal. Therefore, no six or seven pin locks at entrances to units.
- Windows are assumed to be single hung vinyl with U-value and solar heat gain coefficient (SHGC) between 0.37 and 0.40 depending on availability.
- Garage door will be metal non-insulated with ½ hp opener chain driven.

h. Division 09000 – Finishes

- All UL and fire separations will be met with appropriate drywall assemblies. Where needed all other locations will be ½" standard drywall. Ceilings will be 5/8" to minimize sagging.
- Drywall texture is anticipated to be 'Orange Peel'. ***Further investigation will be done to determine drywall texture.***
- Paint being specified is anticipated on using low VOC. Paint to be eggshell without cutting in trim.
- 4 exterior colors are anticipated in each area.
- All wet areas are anticipated on being sheet vinyl. Sheet vinyl will be installed per all manufacturers' requirements.
- Carpet is anticipated on being 28 to 32 oz. cut pile with 6 lb. rebound pad. Single color for all units in earth tone to minimize appearance of dirt.
- Stairs will have waterfall effect (i.e., carpet will not be tucked under tread nosing).
- No location within units will be left with bare concrete only.

i. Division 10000 – Accessories

- The following items will be installed in each full bathroom:
  - 2 – 24 inch towel bars
  - 1 – toilet paper holder
  - 1 – medicine cabinet w/ mirror door
- Grab bars will not be provided or installed in units that are handicap adaptable. However, blocking will be provided for installing them when needed.
- All shelving is anticipated to be12 inches deep.
- Single row of vinyl-coated shelving will be in every closet so as not to impair the opening of any doors or from wall to wall. Double shelf will be placed in master closet along one wall. Pantry and linen closets will have five rows of shelves. No shelves have been anticipated in any of the interior storage locations. ***O6 and 07 quarters bedroom closets will be treated with a different finishes. This finishes is to be determined.***
- Mirrors are 3/16" thick and will run the entire length of the vanities. Mirrors will be 42 inches tall.

j. Division 11000 – Equipment

- All appliances will be Energy Star certified.
- The following appliances are anticipated in each unit:
  - Refrigerator size 20 cu. ft.
  - Dishwasher 5 cycle with high heat and drying cycles
  - ½ hp disposal
  - Vented range hood
  - Electric range with smooth surface cook top
  - Microwave above range

k. Division 12000 – Furnishes

- All kitchen and vanity counter tops will be laminate post form with integral back splash. ***O6 and O7 kitchens will have a hard surface countertop. Finish to be determined.***
- Cabinets will have solid wood framed faces with raised panel doors, natural with natural wood color. Side panels will be particleboard with laminate covering to match cabinet doors and drawers.
- Horizontal mini blinds will be installed on all windows and the French patio doors. ***2" Blinds will be used in O4, O5, E9, O6 AND O7 homes***

l. Division 13000 – Specialty

- All community centers will be based on Community Developments specifications
- Playground will be based on one tot-lot per 50 units. ***Will be determined per site-specific conditions for each community.***
- Signage is included as an allowance.

m. Division 15000 – Mechanical

- Interior water lines are anticipated on being either CPVC or Peks piping.
- Water heater will meet Energy Star certification and be electric.
- Floor drain is anticipated only in mechanical / laundry room.
- Tubs and surrounds are anticipated on being fiberglass or similar, no tile.
- All sinks are anticipated on being top mount, kitchen stainless 20 gauge, 7 inches deep and bathroom Vykrel or similar.
- HVAC is geo-thermal with zone system.
- Programmable thermostats one upstairs and one downstairs,
- Ductwork will be rigid or fiberglass.

n. Division 16000 – Electrical

- No conduit will be used on interior of units. All wire is expected to be ROMEX.
- Outlets and switches will be installed at handicap height 24 inches from floor and 54 inches from floor respectively.
- Fixtures will be Energy Star with switched fixtures in every room and walk-in closets.
- Meter pack per unit with 150-amp service.
- Cable and TV pre-wire are not provided for in the estimate. It is assumed that these services will be provided for by local provider.

Left to do.

Develop chart showing demo reduction
Insert schedule
Chart showing increase in new homes.
Insert Block numbers

APPENDIX B

Coastal Zone Consistency Determinations

Fort Eustis

Fort Story

Fort Monroe

Coastal Zone Management Act (CZMA)
Consistency Determination
For
Fort Eustis Lands Affected by the Residential Communities Initiative

This document provides the Commonwealth of Virginia with the Fort Eustis Consistency Determination under CZMA section 307(c) (1) and 15 CFR Part 930, sub-part C, for the Residential Communities Initiative that pertains to Fort Eustis lands. The information in this Consistency Determination is provided pursuant to 15 CFR section 930.39. This activity includes:

[The following paragraphs of text summarize the proposed federal activity. A full description of the proposed activity may be found in the Environmental Assessment for the Residential Communities Initiative at Forts Eustis, Story, and Monroe, VA which is incorporated by reference into this Consistency Determination].

The Forts Eustis, Story, and Monroe propose to transfer responsibility for providing housing and ancillary supporting facilities to a private development partner. Under this transfer, the development partner would provide new and improve existing housing, provide ancillary supporting facilities, and perform continual maintenance and management of the housing at Fort Eustis. This would be accomplished by renovating or demolishing existing housing, constructing new housing units, and developing new housing communities.

The proposed action is needed at the installations to provide affordable, quality housing and ancillary supporting facilities to soldiers and their families. The current housing situation on the installations is that the housing units are aging and subsequently in need of repairs (including major improvements in infrastructure such as utilities, roads, and landscaping), have potential health and safety issues, lack contemporary amenities (i.e. family rooms, laundry/utility space, adequate interior and exterior storage space), and generally do not meet the installation's target standards for adequate housing.

There is a shortage of 4-bedroom housing units at each installation. The waiting list for family housing on Forts Eustis and Story includes 185 families. The average waiting time is three months at Fort Eustis.

It is the objective of the Developer to enhance the quality of life for the military members and their families by building neighborhoods that have a sense of community, addressing housing and property maintenance concerns and providing ample useful space within the housing units and the around the neighborhoods.

Specific activities related to the proposed action include:

- Conveying 952 existing dwelling units in 8 housing areas (villages) and 4 farmhouses on Fort Eustis to the Developer and provide the Developer with a 50-year land lease of approximately 154 acres.
- Conveying existing housing maintenance facilities (Forts Eustis and Story only) and lease of the underlying lands.
- Total leased acreage on Fort Eustis would be approximately 235 acres.

Fort Eustis has determined that the Residential Communities Initiative (for the Fort Eustis lands affected under the proposed action) affects the land or water uses or natural resources of Virginia in the following manner:

[Please refer to section 4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES 4.1 FORT EUSTIS in general. Specifically sections 4.1.3 Air Quality, 4.1.5 Geology and Soils, 4.1.6 Water Resources, 4.1.7 Biological Resources (wetlands 4.1.7.1.4 and 4.1.7.2.1), 4.1.11 Utilities, 4.1.12 Hazardous and Toxic Substances).

The Virginia Coastal Resources Management Program contains the following applicable enforceable policies:

Applicable Enforceable Policies	Federally Proposed Action's Effect
1. Fisheries Management The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). The State Tributyltin Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing Tributyltin. The use of Tributyltin in boat paint constitutes a serious threat to important marine animal species. The Tributyltin program monitors boating activities and boat painting activities to ensure compliance with Tributyltin regulations promulgated pursuant to the amendment. The MRC, the DGIF, and Virginia Department of Agriculture Services share enforcement responsibilities (Code of Virginia § 3.1-249.59 thru 3.1-249.62).	**NO EFFECT:** Refer to analyses found in the Environmental Assessment. The proposed project does not propose to build, dump or otherwise trespass upon or over, encroach upon, take or use any material from the beds of the bays, ocean, rivers, streams or creeks within the jurisdiction of Virginia. The proposed project does not have a reasonably foreseeable effect on spawning/nursery or feeding grounds and therefore none on fisheries management per the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). Additionally, no paints containing Tributyltin will be used under this proposed activity.
2. Sub-aqueous Lands Management The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the DEQ, Water Division. The program is administered by the MRC (Code of Virginia § 28.2-1200 thru 28.2-1213).	**NO EFFECT:** No subaqueous land use is proposed under this action. This project involves no encroachments in, on, or over state-owned submerged lands.
3. Dunes Management Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the MRC (Code of Virginia § 28.2-1400 thru 28.2-1420).	**NO EFFECT:** No permanent alteration of or construction upon any coastal primary sand dune shall take place under the proposed action.

4. Shoreline Sanitation The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Code of Virginia § 32.1-164 thru § 32.1-165).	**NO EFFECT:** No Septic Tanks are planned to be used in this project. Sanitary Sewer Service is provided throughout the Post. The system conveys wastewater sewage to an on-post pump station owned by Hampton Roads Sanitation District (HRSD). HRSD pumps the wastewater offsite to be treated at an HRSD treatment facility. The on-post sewage collection and pumping facilities, up to the HRSD pump station are owned by the Army, but could be privatized in the near future.
5. Air Pollution Control The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Code of Virginia § 10-1.1300).	**NO EFFECT:** A RECORD OF NON-APPLICABILITY (RONA) CONCERNING THE GENERAL CONFORMITY RULE (Code of Federal Regulations (CFR), Title 40 Part 51) has been prepared and included as an Appendix in the environmental assessment.
6. Wetlands Management The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The tidal wetlands program is administered by the VAMRC (Code of Virginia § 28.2-1301 thru § 28.2-1320). The Virginia Water Protection Permit program administered by the DEQ includes protection of wetlands, both tidal and non-tidal. This program is authorized by Code of Virginia § 62.1-44.15.5 and the Water Quality Certification requirements of Section 401 of the Clean Water Act of 1972.	**NO EFFECT:** The proposed footprint areas for this project do not intersect with any of the wetlands on Fort Eustis, delineated in 1995. As such, it is unlikely that this project would require a Virginia Water Protection Permit as the proposed action does not propose to conduct any of the following activities in a wetland: 1. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions. 2. Filling or dumping. 3. Permanent flooding or impounding. 4. New activities that cause significant alteration or degradation of existing wetland acreage or functions. However, during the course of the proposed action, should it become evident that such an impact would occur, then the Developer would apply for a VWP permit prior to commencing such activity. Additionally, the Developer would prepare and adhere to an Erosion and Sediment Control Plan to prevent sedimentation from entering surface waters (see non-point source pollution control section below).

7. Non-point Source Pollution Control Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation (DCR) (Code of Virginia § 10.1-560 et.seq.). According to the Department of Conservation and Recreation, the following activities are regulated by the Erosion and Sediment Control Law (Virginia Code section 10.1-567) and its implementing regulations if these activities involve 2,500 square feet or more of land disturbance: ▪ clearing and grading activities; ▪ installation of staging areas, parking lots, roads, buildings, utilities, or other structures; ▪ soil/dredge spoil areas; ▪ related land conservation activities.	**NO EFFECT:** The proposed action will require disturbing in excess of 2,500 square feet of land with the following activities: ▪ clearing and grading activities; and ▪ installation of staging areas, parking lots, roads, buildings, utilities and other structures. Accordingly, the Developer would prepare and implement an Erosion and Sediment Control Plan to ensure compliance with state law. The Army recognizes that it is ultimately responsible for achieving compliance through oversight of contractors, regular field inspection, prompt action against non-compliance, and/or other mechanisms consistent with VA agency policy. The Developer will be required to incorporate within this project, Sustainable Design and Development (SDD) construction principles consistent with Army policy. The Army has adopted the Sustainable Project Rating Tool (SPiRiT) scoring and rating process to characterize the sustainability of a building bronze, silver, gold and platinum scale. To comply with Army policy, projects under the Residential Communities Initiative (RCI), planned or under design, will meet the Gold rating. Under SPiRiT it is a ***requirement*** to design a site sediment and erosion control plan and a pollution prevention plan that conforms to best management practices in the EPA's Storm Water Management for Construction Activities, EPA Document No. EPA-833-R-92-001, Chapter 3, OR local Erosion and Sedimentation Control standards and codes, whichever is more stringent. The plan shall meet the following codes: o Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse. o Prevent sedimentation of storm sewer or receiving streams and/or air pollution with dust and particulate matter. o Prevent hazardous material discharge into storm water

	system. o Prevent petroleum oils and lubricants (POL) discharge into storm water systems. Additional points in the SPiRiT system are earned if there is: No net increase in the rate or quantity of stormwater runoff from undeveloped to developed conditions; OR, if existing imperviousness is greater than 50%, implement a stormwater management plan that results in a 25% decrease in the rate and quantity of stormwater runoff. It is recognized that, short term minor impacts to storm water run-off may occur during the construction phase of the proposed action. To minimize this impact, Best Management Practices (BMPs) in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP) would be emplaced. The BMPs may be reviewed at the Fort Eustis Environmental Office. The Developer would be required to obtain a General Construction Stormwater Permit for this project. A copy of the General Construction Stormwater Permit must be on file with Fort Eustis' ENRD wastewater and stormwater program manager prior to start of construction. Long term, indirect impacts to water resources have the potential to occur in the event of a spill or accidental release of a HM resulting from construction or subsequent housing occupants. Standard operating procedures for the prevention of spills and contingency operations (in the event of a spill) are in place. No indirect effects to water resources would be expected to occur. Spill response capabilities are available throughout Fort Eustis to address any accidental spills or discharges, and can be deployed to any area within the proposed residential community housing areas.
8. Point Source Pollution Control The point source program is administered by the State Water Control Board pursuant to Code of Virginia § 62.1-44.15. Point source pollution control is accomplished through the implementation of the	**NO EFFECT:** Indirect impacts to water resources have the potential to occur as a direct result of the residential occupation of the housing units proposed under this action however, base housing currently exists and spill

National Pollutant Discharge Elimination System permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System permit program.	response capabilities are available throughout Fort Eustis to address any accidental spills or discharges. This capability can be deployed to any area within the proposed residential community areas and would be so if needed. Therefore no indirect impacts to water resources would be expected to occur under this proposed action. Indirect impacts to water resources have the potential to occur in the event of a spill or accidental release of a HM during construction proposed under this action. Standard operating procedures for the prevention of spills and contingency operations (in the event of a spill) are in place therefore no indirect effects to water resources would be expected to occur.
9. Coastal Lands Management This program is a state-local cooperative program administered by the Chesapeake Bay Local Assistance Department and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Code of Virginia § 10.1-2100 thru § 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC 10-20-10 et seq.	**NO EFFECT:** Buffer areas of not less than 100 feet in width located adjacent to and landward of the components listed in 9 VAC 10-20-80 Resource Protection Areas would be adhered to. Best Management Practices (BMPs) as specified in above sections will be developed and/or implemented in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP). BMPs may be reviewed at the Fort Eustis Environmental Office. The Developer would be required to obtain a General Construction Stormwater Permit for this project. A copy of the General Construction Stormwater Permit must be on file with Fort Eustis' ENRD wastewater and stormwater program manager prior to start of construction.

Other Environmental Issues

10. Solid and Hazardous Waste Management.

Construction and demolition activities will require the use of some hazardous substances and will possibly generate solid, and some hazardous wastes. Please refer to the Environmental Assessment section 4.1.12 for further description of the affected environment. Fort Eustis' TCFE 200-6 Environmental Management Standard Operating Procedures (Draft) specifies the requirements for waste identification, storage, handling, transportation, disposal, emergency response, and waste minimization. The TCFE 200-6 SOP will be strictly adhered to during the construction phases of the project. By doing so, Fort Eustis would comply with all laws and regulations applicable to HM/HW and would ensure that no significant adverse effects would result from the occurrence, handling, transportation, or storage of HM/HW.

The Developer will appoint an environmental activity coordinator to ensure compliance with all regulatory environmental requirements. All hazardous materials would be handled in a manner consistent with applicable laws and regulations and thus no environmental or health effects resulting from their storage, handling, or disposal would be expected.

Whenever practicable, the Developer would use environmental preferred materials and products for this project. By specifying usage of a percentage (25% = 1 point, 50% = 2 points) of building materials that contain in aggregate a minimum weighted average of 20% post-consumer recycled content material, OR, a minimum weighted average of 40% post-industrial recycled content material, the Developer could gain additional SPiRiT points toward achieving the Gold rating. Additional points may be gained by specifying salvaged or refurbished materials for 5% or 10% of building materials.

The proposed action would create the need to use local area landfills. It is a requirement under SPiRiT to provide an easily accessible area that serves the entire building occupants that is hauled to and disposed of in landfills. Solid waste generated at Fort Eustis would be collected by a contractor and disposed of in the Hampton/NASA steam plant. Construction debris would be sent to the Bethel Landfill in Hampton or the Wolftrap Landfill in York County.

When practicable, the Developer would divert demolition debris for recycle and/or reuse. Diversion decreases the impact on the environment because these items will not contribute to possible land, air, or water contamination as a result of being landfilled. Rather, the items will be reused in new construction or renovation or put back into the manufacturing process where they will be processed to make new items. Under SPiRiT, the Developer can earn additional points (2 possible) toward achieving a Gold rating by developing and implementing a waste management plan, quantifying material diversion by weight:

- Recycle and/or salvage at least 50% (by weight) of construction, demolition, and land clearing waste.
- Recycle and/or salvage an additional 25% (75% total by weight) of the construction, demolition, and land clearing waste.

11. Historic Structures and Archaeological Resources.

Detailed descriptions of cultural resources are available in the Fort Eustis Integrated Cultural Resources Management Plan (ICRMP).

The proposed action does propose impacts to historical resources however; Fort Eustis is coordinating project planning and development with the Virginia Department of Historic Resources (State Historic Preservation Office) through the use of a programmatic agreement.

Based upon the following information, data, and analysis, the Fort Eustis finds that the Residential Communities Initiative relevant to Fort Eustis lands is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

The Environmental Assessment for the Residential Communities Initiative at Forts Eustis, Story, and Monroe, VA, is incorporated by reference into this Consistency Determination. It provides the information, data and analyses supporting the determination of consistency with the applicable enforceable policies.

Pursuant to 15 CFR section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by Fort Eustis on the 60th day from receipt of this determination. The State's response should be sent to:

Tom Delaney
Tetra Tech, Inc.
10306 Eaton PL
Suite 340
Fairfax, VA 22030
(703)385-6000 ext 125
(703)385-6007 (fax)

E. Douglas Earle
Colonel, US Army
Garrison Commander

Date

Coastal Zone Management Act (CZMA)
Consistency Determination
For
Fort Story Lands Affected by the Residential Communities Initiative

This document provides the Commonwealth of Virginia with the Fort Story Consistency Determination under CZMA section 307(c) (1) and 15 CFR Part 930, sub-part C, for the portion of the Residential Communities Initiative that pertains to Fort Story lands. The information in this Consistency Determination is provided pursuant to 15 CFR Section 930.39. This activity includes:

[The following paragraphs of text summarize the proposed federal activity. A full description of the proposed activity may be found in the Environmental Assessment for the Residential Communities Initiative at Forts Eustis, Story, and Monroe, VA which is incorporated by reference into this Consistency Determination].

The Forts Eustis, Story, and Monroe propose to transfer responsibility for providing housing and ancillary supporting facilities to a private development partner. Under this transfer, the development partner would provide new and improve existing housing, restore units in the historic neighborhoods, provide ancillary supporting facilities, and perform continual maintenance and management of the housing at Fort Story. This would be accomplished by renovating or demolishing existing housing, constructing new housing units, and developing new housing communities.

The proposed action is needed at the installations to provide affordable, quality housing and ancillary supporting facilities to soldiers and their families. The current housing situation on the installations is that the housing units are aging and subsequently in need of repairs (including major improvements in infrastructure such as utilities, roads, and landscaping), have potential health and safety issues, lack contemporary amenities (i.e. family rooms, laundry/utility space, adequate interior and exterior storage space), and generally do not meet the installation's target standards for adequate housing.

There is a shortage of 4-bedroom housing units at each installation. The waiting list for family housing on Forts Eustis and Story includes 185 families with an average waiting time of 14-16 months at Fort Story.

It is the objective of the Developer to enhance the quality of life the military members and their families by building neighborhoods that have a sense of community, addressing housing and property maintenance concerns and providing ample useful space within the housing units and the around the neighborhoods.

Specific activities related to the proposed action on Fort Story include:

- Conveying 163 existing dwelling units in two housing areas and 16 stand-alone units on Fort Story to the Developer and provide the Developer with a 50-year land lease of approximately 34 acres.
- Conveying existing housing maintenance facilities (Forts Eustis and Story only) and lease of the underlying lands.
- Total leased Fort Story acreage would be approximately 211 acres.

Fort Story has determined that the Residential Communities Initiative (for the Fort Story lands affected under the proposed action) affects the land or water uses or natural resources of Virginia in the following manner:

[Please refer to section 4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES 4.2 FORT STORY in general. Specifically sections 4.2.3 Air Quality, 4.2.5 Geology and Soils, 4.2.6 Water Resources, 4.2.7 Biological Resources (wetlands 4.2.7.1.4 and 4.2.7.2.1), 4.2.11 Utilities, 4.2.12 Hazardous and Toxic Substances).

The Virginia Coastal Resources Management Program contains the following applicable enforceable policies:

Applicable Enforceable Policies	Federally Proposed Action's Effect
1. Fisheries Management The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). The State Tributyltin Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing Tributyltin. The use of Tributyltin in boat paint constitutes a serious threat to important marine animal species. The Tributyltin program monitors boating activities and boat painting activities to ensure compliance with Tributyltin regulations promulgated pursuant to the amendment. The MRC, the DGIF, and Virginia Department of Agriculture Services share enforcement responsibilities (Code of Virginia § 3.1-249.59 thru 3.1-249.62).	**NO EFFECT:** Refer to analyses found in the Environmental Assessment. The proposed project does not propose to build, dump or otherwise trespass upon or over, encroach upon, take or use any material from the beds of the bays, ocean, rivers, streams or creeks within the jurisdiction of Virginia. The proposed project does not have a reasonably foreseeable effect on spawning/nursery or feeding grounds and therefore none on fisheries management per the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). Additionally, no paints containing Tributyltin will be used under this proposed activity.
2. Sub-aqueous Lands Management The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the DEQ, Water Division. The program is administered by the MRC (Code of Virginia § 28.2-1200 thru 28.2-1213).	**NO EFFECT:** No subaqueous land use is proposed under this action. This project involves no encroachments in, on, or over state-owned submerged lands.
3. Dunes Management Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the MRC (Code of Virginia § 28.2-1400 thru 28.2-1420).	**NO EFFECT:** No permanent alteration of or construction upon any coastal primary sand dune shall take place under the proposed action. Additionally, the East Beach Dunes Conservation Site will not be included in the developmental footprint.

4. Shoreline Sanitation The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Code of Virginia § 32.1-164 thru § 32.1-165).	**NO EFFECT:** No Septic Tanks are planned to be used in this project. Sanitary Sewer Service is provided throughout the Post. The installation has 20 sanitary sewage pump stations that convey the wastewater to the gravity sewers and ultimately to the main on-post pump station located off Marshall's Island Road. Wastewater treatment at Fort Story is provided by the HRSD. Wastewater from Fort Story is collected into the Virginia Beach system.
5. Air Pollution Control The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Code of Virginia § 10-1.1300).	**NO EFFECT:** A RECORD OF NON-APPLICABILITY (RONA) CONCERNING THE GENERAL CONFORMITY RULE (Code of Federal Regulations (CFR), Title 40 Part 51) has been prepared and included as an Appendix in the environmental assessment.
6. Wetlands Management The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The tidal wetlands program is administered by the VAMRC (Code of Virginia § 28.2-1301 thru § 28.2-1320). The Virginia Water Protection Permit program administered by the DEQ includes protection of wetlands, both tidal and non-tidal. This program is authorized by Code of Virginia § 62.1-44.15.5 and the Water Quality Certification requirements of Section 401 of the Clean Water Act of 1972.	**NO EFFECT:** The proposed footprint areas for this project do not intersect with any of the wetlands on Fort Story. As such, it is unlikely that this project would require a Virginia Water Protection Permit as the proposed action does not propose to conduct any of the following activities in a wetland: 1. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions. 2. Filling or dumping. 3. Permanent flooding or impounding. 4. New activities that cause significant alteration or degradation of existing wetland acreage or functions. However, during the course of the proposed action, should it become evident that such an impact would occur, then the Developer would apply for a VWP permit prior to commencing such activity. Additionally, the Developer would prepare and adhere to an Erosion and Sediment Control Plan to prevent sedimentation from entering surface waters (see non-point source pollution control section below).

7. Non-point Source Pollution Control Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation (DCR) (Code of Virginia § 10.1-560 et.seq.). According to the Department of Conservation and Recreation, the following activities are regulated by the Erosion and Sediment Control Law (Virginia Code section 10.1-567) and its implementing regulations if these activities involve 2,500 square feet or more of land disturbance: ▪ clearing and grading activities; ▪ installation of staging areas, parking lots, roads, buildings, utilities, or other structures; ▪ soil/dredge spoil areas; ▪ related land conservation activities.	**NO EFFECT:** The proposed action will require disturbing in excess of 2,500 square feet of land with the following activities: ▪ clearing and grading activities; and ▪ installation of staging areas, parking lots, roads, buildings, utilities and other structures. Accordingly, the Developer would prepare and implement an Erosion and Sediment Control Plan to ensure compliance with state law. The Army recognizes that it is ultimately responsible for achieving compliance through oversight of contractors, regular field inspection, prompt action against non-compliance, and/or other mechanisms consistent with VA agency policy. The Developer will be required to incorporate within this project, Sustainable Design and Development (SDD) construction principles consistent with Army policy. The Army has adopted the Sustainable Project Rating Tool (SPiRiT) scoring and rating process to characterize the sustainability of a building bronze, silver, gold and platinum scale. To comply with Army policy, projects under the Residential Communities Initiative (RCI), planned or under design, will attempt to meet the Gold rating. Under SPiRiT it is a ***requirement*** to design a site sediment and erosion control plan and a pollution prevention plan that conforms to best management practices in the EPA's Storm Water Management for Construction Activities, EPA Document No. EPA-833-R-92-001, Chapter 3, OR local Erosion and Sedimentation Control standards and codes, whichever is more stringent. The plan shall meet the following codes: o Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse. o Prevent sedimentation of storm sewer or receiving streams and/or air pollution with dust and particulate matter. o Prevent hazardous material discharge into storm water

	system. o Prevent petroleum oils and lubricants (POL) discharge into storm water systems. Additional points in the SPiRiT system are earned if there is: No net increase in the rate or quantity of stormwater runoff from undeveloped to developed conditions; OR, if existing imperviousness is greater than 50%, implement a stormwater management plan that results in a 25% decrease in the rate and quantity of stormwater runoff. It is recognized that, short term minor impacts to storm water run-off may occur during the construction phase of the proposed action. To minimize this impact, Best Management Practices (BMPs) in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP) would be emplaced. The BMPs may be reviewed at the Fort Eustis Environmental Office. The Developer would be required to obtain a General Construction Stormwater Permit for this project. A copy of the General Construction Stormwater Permit must be on file with Fort Eustis' ENRD wastewater and stormwater program manager prior to start of construction. Long term, indirect impacts to water resources have the potential to occur in the event of a spill or accidental release of a HM resulting from construction or subsequent housing occupants. Standard operating procedures for the prevention of spills and contingency operations (in the event of a spill) are in place. No indirect effects to water resources would be expected to occur. Spill response capabilities are available throughout Fort Story to address any accidental spills or discharges, and can be deployed to any area within the proposed residential community housing areas.
8. Point Source Pollution Control The point source program is administered by the State Water Control Board pursuant to Code of Virginia § 62.1-44.15. Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System permit program	**NO EFFECT:** Indirect impacts to water resources have the potential to occur as a direct result of the residential occupation of the housing units proposed under this action however, base housing currently exists and spill response capabilities are available throughout Fort Story to address

established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System permit program.	any accidental spills or discharges. This capability can be deployed to any area within the proposed residential community areas and would be so if needed. Therefore no indirect impacts to water resources would be expected to occur under this proposed action. Indirect impacts to water resources have the potential to occur in the event of a spill or accidental release of a HM during construction proposed under this action. Standard operating procedures for the prevention of spills and contingency operations (in the event of a spill) are in place therefore no indirect effects to water resources would be expected to occur.
9. Coastal Lands Management This program is a state-local cooperative program administered by the Chesapeake Bay Local Assistance Department and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Code of Virginia § 10.1-2100 thru § 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC 10-20-10 et seq.	**NO EFFECT:** Buffer areas of not less than 100 feet in width located adjacent to and landward of the components listed in 9 VAC 10-20-80 Resource Protection Areas would be adhered to. Best Management Practices (BMPs) as specified in above sections will be developed and/or implemented in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP). BMPs may be reviewed at the Fort Eustis Environmental Office. The Developer would be required to obtain a General Construction Stormwater Permit for this project. A copy of the General Construction Stormwater Permit must be on file with Fort Eustis' ENRD wastewater and stormwater program manager prior to start of construction.

Other Environmental Issues

10. Solid and Hazardous Waste Management.

Construction and demolition activities will require the use of some hazardous substances and will possibly generate solid and some hazardous wastes. Please refer to the Environmental Assessment section 4.2.12 for further description of the affected environment. Fort Eustis and Story's TCFE 200-6 Environmental Management Standard Operating Procedures (Draft) specifies the requirements for waste identification, storage, handling, transportation, disposal, emergency response, and waste minimization. The TCFE 200-6 SOP will be strictly adhered to during the construction phases of the project. By doing so, Fort Story would comply with all laws and regulations applicable to HM/HW and would ensure that no significant adverse effects would result from the occurrence, handling, transportation, or storage of HM/HW.

The Developer will appoint an environmental activity coordinator to ensure compliance with all regulatory environmental requirements. All hazardous materials would be handled in a manner consistent with applicable laws and regulations and thus no environmental or health effects resulting from their storage, handling, or disposal would be expected.

Whenever practicable, the Developer would use environmental preferred materials and products for this project. By specifying usage of a percentage (25% = 1 point, 50% = 2 points) of building materials that contain in aggregate a minimum weighted average of 20% post-consumer recycled content material, OR, a minimum weighted average of 40% post-industrial recycled content material, the Developer could gain additional SPiRiT points toward achieving the Gold rating. Additional points may be gained by specifying salvaged or refurbished materials for 5% or 10% of building materials.

The proposed action would create the need to use local area landfills. It is a requirement under SPiRiT to provide an easily accessible area that serves the entire building occupants that is hauled to and disposed of in landfills. Solid waste generated at Fort Story would be hauled to the South East Public Service Authority landfill or transfer station. Construction debris is taken to the Suffolk landfill.

When practicable, the Developer would divert demolition debris for recycle and/or reuse. Diversion decreases the impact on the environment because these items will not contribute to possible land, air, or water contamination as a result of being landfilled. Rather, the items will be reused in new construction or renovation or put back into the manufacturing process where they will be processed to make new items. Under SPiRiT, the Developer can earn additional points (2 possible) toward achieving a Gold rating by developing and implementing a waste management plan, quantifying material diversion by weight:

a. Recycle and/or salvage at least 50% (by weight) of construction, demolition, and land clearing waste.
b. Recycle and/or salvage an additional 25% (75% total by weight) of the construction, demolition, and land clearing waste.

11. Historic Structures and Archaeological Resources.

The proposed action does propose impacts to historical resources however; Fort Story is coordinating project planning and development with the Virginia Department of Historic Resources (State Historic Preservation Office) through the use of a programmatic agreement.

Based upon the following information, data, and analysis, the Fort Story finds that the Residential Communities Initiative project relevant to Fort Story lands is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

[*The Environmental Assessment for the Residential Communities Initiative at Forts Eustis, Story, and Monroe, VA, is incorporated by reference into this Consistency Determination. It provides the information, data and analyses supporting the determination of consistency with the applicable enforceable policies].*

Pursuant to 15 CFR section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by Fort Story on the 60th day from receipt of this determination. The State's response should be sent to:

Tom Delaney
Tetra Tech, Inc.
10306 Eaton PL
Suite 340
Fairfax, VA 22030
(703)385-6000 ext 125
(703)385-6007 (fax)

E. Douglas Earle
Colonel, US Army
Garrison Commander

Date

Coastal Zone Management Act (CZMA)
Consistency Determination
For
Fort Monroe Lands Affected by the Residential Communities Initiative

This document provides the Commonwealth of Virginia with the Fort Monroe Consistency Determination under CZMA section 307(c) (1) and 15 CFR Part 930, sub-part C, for the Residential Communities Initiative that pertains to Fort Monroe lands. The information in this Consistency Determination is provided pursuant to 15 CFR Section 930.39. This activity includes:

[The following paragraphs of text summarize the proposed federal activity. A full description of the proposed activity may be found in the Environmental Assessment for the Residential Communities Initiative at Forts Eustis, Story, and Monroe, VA which is incorporated by reference into this Consistency Determination].

Fort Monroe proposes to transfer responsibility for providing housing and ancillary supporting facilities to a private development partner. Under this transfer, the development partner would provide new and improve existing housing, restore units in the historic neighborhoods, provide ancillary supporting facilities, and perform continual maintenance and management of the housing at Fort Monroe. This would be accomplished by renovating or demolishing existing housing, constructing new housing units, and developing new housing communities.

The proposed action is needed at the installations to provide affordable, quality housing and ancillary supporting facilities to soldiers and their families. The current housing situation on the installation is the housing units are aging and subsequently in need of repairs (including major improvements in infrastructure such as utilities, roads, and landscaping), have potential health and safety issues, lack contemporary amenities (i.e. family rooms, laundry/utility space, adequate interior and exterior storage space), and generally do not meet the installation's target standards for adequate housing.

There is a shortage of 3- and 4-bedroom housing in Fort Monroe's historic housing. Fort Monroe's waiting list includes 69 families with an average waiting time of 12 months at Fort Monroe.

It is the objective of the Developer to enhance the quality of life for the military members and their families by building neighborhoods that have a sense of community, addressing housing and property maintenance concerns and providing ample useful space within the housing units and the around the neighborhoods.

Specific activities related to the proposed action include:

- Conveying 389 existing dwelling units on Fort Monroe to the Developer and provide the Developer with a 50-year land lease of approximately 26.5 acres.
- Conveying an approximately 4.3-acre parcel (undeveloped) located adjacent to the Fort, along the northwest side of the moat. This area, currently open grass covered space, lies adjacent to and west of the southern Wherry housing area, and south of the old national bank and parking areas.

Fort Monroe has determined the Residential Communities Initiative (for the Fort Monroe lands affected under the proposed action) affects the land or water uses or natural resources of Virginia in the following manner:

[Please refer to section 4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES, 4.3 FORT MONROE in general. Specifically sections 4.3.3 Air Quality, 4.3.5 Geology and Soils, 4.3.6 Water Resources, 4.3.7 Biological Resources (wetlands 4.3.7.1.4 and 4.3.7.2.1), 4.3.11 Utilities, 4.3.12 Hazardous and Toxic Substances).

The Virginia Coastal Resources Management Program contains the following applicable enforceable policies:

Applicable Enforceable Policies	Federally Proposed Action's Effect
Fisheries Management The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). The State Tributyltin Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing Tributyltin. The use of Tributyltin in boat paint constitutes a serious threat to important marine animal species. The Tributyltin program monitors boating activities and boat painting activities to ensure compliance with Tributyltin regulations promulgated pursuant to the amendment. The MRC, the DGIF, and Virginia Department of Agriculture Services share enforcement responsibilities (Code of Virginia § 3.1-249.59 thru 3.1-249.62).	**NO EFFECT:** Refer to analyses found in the Environmental Assessment. The proposed project does not propose to build, dump or otherwise trespass upon or over, encroach upon, take or use any material from the beds of the bays, ocean, rivers, streams or creeks within the jurisdiction of Virginia. The proposed project does not have a reasonably foreseeable effect on spawning/nursery or feeding grounds and therefore none on fisheries management per the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). Additionally, no paints containing Tributyltin will be used under this proposed activity.
Subaqueous Lands Management The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the DEQ, Water Division. The program is administered by the MRC (Code of Virginia § 28.2-1200 thru 28.2-1213).	**NO EFFECT:** No subaqueous land use is proposed under this action. This project involves no encroachments in, on, or over state-owned submerged lands.
Dunes Management Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the MRC (Code of Virginia § 28.2-1400 thru 28.2-1420).	**NO EFFECT:** No permanent alteration of or construction upon any coastal primary sand dune shall take place under the proposed action.

Shoreline Sanitation The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Code of Virginia § 32.1-164 thru § 32.1-165).	**NO EFFECT:** No Septic Tanks are planned to be used in this project. Sanitary Sewer Service is provided throughout the Post. The system conveys sanitary wastewater from Fort Monroe to the Hampton Roads Sanitation District (HRSD) sewerage system. It is then carried to the District's Small Boat Harbor Sewage Treatment Plant in Newport News.
Air Pollution Control The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Code of Virginia § 10-1.1300).	**NO EFFECT:** A RECORD OF NON-APPLICABILITY (RONA) CONCERNING THE GENERAL CONFORMITY RULE (Code of Federal Regulations (CFR), Title 40 Part 51) has been prepared and included as an Appendix in the environmental assessment.
Wetlands Management The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The tidal wetlands program is administered by the VAMRC (Code of Virginia § 28.2-1301 thru § 28.2-1320). The Virginia Water Protection Permit program administered by the DEQ includes protection of wetlands, both tidal and non-tidal. This program is authorized by Code of Virginia § 62.1-44.15.5 and the Water Quality Certification requirements of Section 401 of the Clean Water Act of 1972.	**NO EFFECT:** No wetlands occur within the proposed project footprint areas. As such, it is unlikely that this project would require a Virginia Water Protection Permit as the proposed action does not propose to conduct any of the following activities in a wetland: 1. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions. 2. Filling or dumping. 3. Permanent flooding or impounding. 4. New activities that cause significant alteration or degradation of existing wetland acreage or functions. However, during the course of the proposed action, should it become evident that such an impact would occur, then the Developer would apply for a VWP permit prior to commencing such activity. Additionally, the Developer would prepare and adhere to an Erosion and Sediment Control Plan to prevent sedimentation from entering surface waters (see non-point source pollution control section below).

Non-point Source Pollution Control Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation (DCR) (Code of Virginia § 10.1-560 et.seq.). According to the Department of Conservation and Recreation, the following activities are regulated by the Erosion and Sediment Control Law (Virginia Code section 10.1-567) and its implementing regulations if these activities involve 2,500 square feet or more of land disturbance: ▪ clearing and grading activities; ▪ installation of staging areas, parking lots, roads, buildings, utilities, or other structures; ▪ soil/dredge spoil areas; ▪ related land conservation activities.	**NO EFFECT:** Fort Monroe is entirely within the 100-year floodplain. The proposed action will require disturbing in excess of 2,500 square feet of land with the following activities: ▪ clearing and grading activities; and ▪ installation of staging areas, parking lots, roads, buildings, utilities and other structures. Accordingly, the Developer would prepare and implement an Erosion and Sediment Control Plan to ensure compliance with state law. The Army recognizes that it is ultimately responsible for achieving compliance through oversight of contractors, regular field inspection, prompt action against non-compliance, and/or other mechanisms consistent with VA agency policy. The Developer will be required to incorporate within this project, Sustainable Design and Development (SDD) construction principles, consistent with Army policy. The Army has adopted the Sustainable Project Rating Tool (SPiRiT) scoring and rating process to characterize the sustainability of a building bronze, silver, gold and platinum scale. To comply with Army policy, projects under the Residential Communities Initiative (RCI), planned or under design, will meet the Gold rating. Under SPiRiT it is a ***requirement*** to design a site sediment and erosion control plan and a pollution prevention plan that conforms to best management practices in the EPA's Storm Water Management for Construction Activities, EPA Document No. EPA-833-R-92-001, Chapter 3, OR local Erosion and Sedimentation Control standards and codes, whichever is more stringent. The plan shall meet the following codes: o Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.

	o Prevent sedimentation of storm sewer or receiving streams and/or air pollution with dust and particulate matter. o Prevent hazardous material discharge into storm water system. o Prevent petroleum oils and lubricants (POL) discharge into storm water systems. Additional points in the SPiRiT system are earned if there is: No net increase in the rate or quantity of stormwater runoff from undeveloped to developed conditions; OR, if existing imperviousness is greater than 50%, implement a stormwater management plan that results in a 25% decrease in the rate and quantity of stormwater runoff. It is recognized that, short term minor impacts to storm water run-off may occur during the construction phase of the proposed action. To minimize this impact, Best Management Practices (BMPs) in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP) would be emplaced (Fort Monroe Pollution Prevention Plan). The BMPs may be reviewed at the Fort Monroe Environmental Division. The Developer would be required to obtain a General Construction Stormwater Permit for this project. A copy of the General Construction Stormwater Permit must be on file with Fort Monroe's wastewater and stormwater program manager prior to start of construction. Long term impacts to water resources have the potential to occur as a result of increasing storm water run-off due to increased impervious surface area. Additionally, in the event of a spill or accidental release of a HM resulting from construction or subsequent housing occupants. Standard operating procedures for the prevention of spills and contingency operations (in the event of a spill) are in place. No indirect effects to water resources would be expected to occur. Spill response capabilities are available throughout Fort Monroe to address any accidental spills or discharges, and can be deployed to any area within the proposed residential community housing areas.

Point Source Pollution Control The point source program is administered by the State Water Control Board pursuant to Code of Virginia § 62.1-44.15. Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System permit program.	**NO EFFECT:** Indirect impacts to water resources have the potential to occur as a direct result of the residential occupation of the housing units proposed under this action, however, base housing currently exists and spill response capabilities are available throughout Fort Monroe to address any accidental spills or discharges. This capability can be deployed to any area within the proposed residential community areas and would be so if needed. Therefore, no indirect impacts to water resources would be expected to occur under this proposed action. Indirect impacts to water resources have the potential to occur in the event of a spill or accidental release of a HM during construction proposed under this action. Standard operating procedures for the prevention of spills and contingency operations (in the event of a spill) are in place therefore no indirect effects to water resources would be expected to occur. Fort Monroe is entirely within the 100-year floodplain.
Coastal Lands Management This program is a state-local cooperative program administered by the Chesapeake Bay Local Assistance Department and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Code of Virginia § 10.1-2100 thru § 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC 10-20-10 et seq.	**NO EFFECT** Buffer areas of not less than 100 feet in width located adjacent to and landward of the components listed in 9 VAC 10-20-80 Resource Protection Areas would be adhered to. The Developer would be required to obtain a General Construction Stormwater Permit for this project. A copy of the General Construction Stormwater Permit must be on file with Fort Monroe's wastewater and stormwater program manager prior to start of construction. Best Management Practices (BMPs) as specified in above sections will be developed and/or implemented in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP). BMPs will be reviewed at the Fort Monroe Environmental Division.

Other Environmental Issues

1. Solid and Hazardous Waste Management.

Construction and demolition activities will require the use of some hazardous substances and will possibly generate solid, and some hazardous wastes. Please refer to the Environmental Assessment section 4.3.12 for further description of the affected environment. Fort Monroe's Hazardous Material and Waste Management Standard Operating Procedures specifies the requirements for waste identification, storage, handling, transportation, disposal, emergency response, and waste minimization. The SOP will be strictly adhered to during the construction phases of the project. By doing so, Fort Monroe would comply with all laws and regulations applicable to HM/HW and would ensure that no significant adverse effects would result from the occurrence, handling, transportation, or storage of HM/HW.

The Developer will appoint an environmental activity coordinator to ensure compliance with all regulatory environmental requirements. All hazardous materials would be handled in a manner consistent with applicable laws and regulations and thus no environmental or health effects resulting from their storage, handling, or disposal would be expected.

Whenever practicable, the Developer would use environmentally preferred materials and products for this project. By specifying usage of a percentage (25% = 1 point, 50% = 2 points) of building materials that contain in aggregate a minimum weighted average of 20% post-consumer recycled content material, OR, a minimum weighted average of 40% post-industrial recycled content material, the Developer could gain additional SPiRiT points toward achieving the Gold rating. Additional points may be gained by specifying salvaged or refurbished materials for 5% or 10% of building materials.

The proposed action would create the need to use local area landfills. It is a requirement under SPiRiT to provide an easily accessible area that serves the entire building occupants that is hauled to and disposed of in landfills. Solid waste generated at Fort Monroe would be collected by a contractor and disposed of in the Hampton/NASA steam plant. Construction debris would be sent to the Bethel Landfill in Hampton.

When practicable, the Developer would divert demolition debris for recycle and/or reuse. Diversion decreases the impact on the environment because these items will not contribute to possible land, air, or water contamination as a result of being landfilled. Rather, the items will be reused in new construction or renovation or put back into the manufacturing process where they will be processed to make new items. Under SPiRiT, the Developer can earn additional points (2 possible) toward achieving a Gold rating by developing and implementing a waste management plan, quantifying material diversion by weight:

a. Recycle and/or salvage at least 50% (by weight) of construction, demolition, and land clearing waste.
b. Recycle and/or salvage an additional 25% (75% total by weight) of the construction, demolition, and land clearing waste.

2. Historic Structures and Archaeological Resources.

   Detailed descriptions of cultural resources are available in the Historic Architecture Repair and Maintenance Plan, a component of the Fort Monroe Integrated Cultural Resources Management Plan (ICRMP).

   Fort Monroe is a National Historic Landmark (NHL) and is listed on the National Register of Historic Places. The proposed action does propose impacts to historical resources; however, Fort Monroe is coordinating project planning and development with the Virginia Department of Historic Resources (State Historic Preservation Office) through the use of a programmatic agreement.

Based upon the following information, data, and analysis, Fort Monroe finds the Residential Communities Initiative relevant to Fort Monroe lands is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

[*The Environmental Assessment for the Residential Communities Initiative at Forts Eustis, Story, and Monroe, VA, is incorporated by reference into this Consistency Determination. It provides the information, data and analyses supporting the determination of consistency with the applicable enforceable policies].*

Pursuant to 15 CFR section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by the Fort Monroe on the 60th day from receipt of this determination. The State's response should be sent to:

Jennifer Guerrero
Chief, Environmental Division
Directorate of Public Works and Logistics
318 Cornog Lane
Fort Monroe, VA 23651-1110
(757) 788-5363
(757) 788-2841 (fax)
guerrerj@monroe.army.mil

Perry D. Allmendinger
Colonel, U.S. Army
Commanding

Date

APPENDIX C

Record of Non-Applicability
and AECATS Model Results

RECORD OF NON-APPLICABILITY CONCERNING THE GENERAL CONFORMITY RULE
(*Code of Federal Regulations*, Title 40 Part 51)

Congress enacted Section 2801 of the 1996 Defense Authorization Act (Public Law 104-106; codified at 10 U.S.C. 2871-85). This law, known as the Military Housing Privatization Initiative, gives the Army alternative authorities for improvement and construction of military family housing allowing the Army to obtain private sector funding to satisfy family housing requirements.

Forts Eustis, Story, and Monroe propose to remedy the family housing deficiencies by privatizing family housing functions through implementation of the Army Residential Communities Initiative. Under this proposal, these installations would enter into a contract to have a private developer change the on-post inventory of family housing to reflect current and future needs.

Conformity under the Clean Air Act, Section 176, has been evaluated for the proposed action in accordance with Title 40 of the *Code of Federal Regulations* (CFR) Part 51. The requirements of this rule are not applicable to this action because the total direct and indirect emissions associated with the proposed action would be below the *de minimis* threshold. Table 1 lists the estimated direct and indirect annual emissions from construction at Fort Eustis. The emissions estimate is based on using off-highway trucks, two bulldozers, one asphalt paver, one construction crane, and one miscellaneous piece of construction equipment working 52 weeks per year for 58 hours per week. All emissions would fall well below the *de minimis* thresholds established at 40 CFR 51.853(b) of 100 tons per year for volatile organic compounds (VOCs) and 100 tons per year for nitrogen oxides (NO_x). The project/action, therefore, is not considered regionally significant under 40 CFR 51.853(i).

Table 1. *De minimis* Levels for Criteria Pollutants in the Newport News-Virginia Beach-Norfolk Metropolitan Statistical Area, and Estimated Emissions of the Proposed Project.

Criteria Pollutant	*De Minimis* Level (Tons/Year)	Estimated Emissions (Tons/Year)
VOC	100	1.97
NO_x	100	31.597
CO	*	13.239
PM-10	*	2.208
SO_x	*	3.13

* Not a maintenance area for these pollutants.

Linda Pace for

Stephen A. McCall
Chief, Environmental and Natural Resources Division
US Army Transportation Center
Fort Eustis, Virginia

6-16-03

Date

Note: Emissions from proposed action were modeled based on the amount of equipment necessary for the construction effort at Fort Eustis. Emissions from Fort Story and Fort Monroe are expected to be less than the emissions from Fort Eustis.

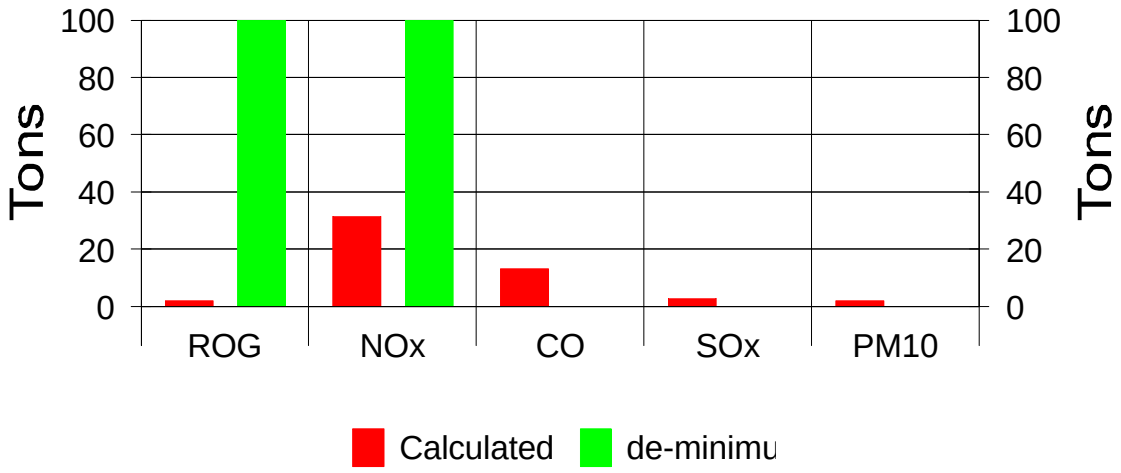
Analysis	ROG	NOx	CO	SOx	PM10
Fort Eustis RCI					
Trucks					
Weekly Use	0.845	18.842	8.147	2.055	1.157
Total	0.845	18.842	8.147	2.055	1.157
Bulldozer					
Weekly Use	0.45	5.102	2.037	0.43	0.42
Total	0.45	5.102	2.037	0.43	0.42
Paver					
Weekly Use	0.225	2.551	1.019	0.215	0.21
Total	0.225	2.551	1.019	0.215	0.21
Crane					
Weekly Use	0.225	2.551	1.019	0.215	0.21
Total	0.225	2.551	1.019	0.215	0.21
Misc.					
Weekly Use	0.225	2.551	1.019	0.215	0.21
Total	0.225	2.551	1.019	0.215	0.21
Total	1.97	31.597	13.239	3.13	2.208

Scenario Name: Fort Eustis RCI

Prepared By: Tetra Tech, Inc.
Prepared on: 7/10/2002
Last Updated on: 6/5/2003

Attainment Information:
State: Virginia
Attainment Zone: Norfolk, VA Beach, Newport News, VA Area

Chemical	Value (tons)	de-minimus
ROG	1.97	100
NOx	31.597	100
CO	13.239	NA
SOx	3.13	NA
PM10	2.208	NA



Notes:

APPENDIX D

Economic Impact Forecast Analysis Model Results

Economic Impact Forecast System (EIFS) Model and Output

Socioeconomic Impact Assessment

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the region of influence (ROI). In this regard, construction of family housing on Fort Eustis, Fort Story, and Fort Monroe will have a multiplier effect on the local and regional economy. With the proposed action, direct jobs will be created, generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services.

The Economic Impact Forecast System

The U.S. Army, with the assistance of many academic and professional economists and regional scientists, developed EIFS to address the economic impacts of NEPA-requiring actions and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS should be used in NEPA assessments for RCI. The entire system is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in EIFS are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS is implemented as an on-line system supported by the U.S. Army Environmental Policy Institute (AEPI) through the Computer Information Science Department of Clark Atlanta University, Georgia. The system is available to anyone with an approved user-id and password. University staff and the staff of AEPI are available to assist with the use of EIFS.

The databases in EIFS are national in scope and cover the approximately 3,700 counties, parishes, and independent cities that are recognized as reporting units by federal agencies. EIFS allows the user to define an economic ROI by identifying the counties, parishes, or cities to be analyzed. Once the ROI is defined, the system aggregates the data, calculates multipliers and other variables used in the various models in EIFS, and prompts the user for forecast input data.

The EIFS Model

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. In calculating the multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the EA process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its base sector; for example, a dollar increase in local expenditures due to an expansion of its military installation. EIFS estimates its multipliers using a location quotient approach based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The user inputs into the model the data elements which describe the Army action: the change in expenditures, or dollar volume of the construction project(s); change in civilian or military employment; average annual income of affected civilian or military employees; the percent of civilians expected to

relocate due to the Army's action; and the percent of military living on-post. Once these are entered into the EIFS model, a projection of changes in the local economy is provided. These are projected changes in sales volume, income, employment, and population. These four indicator variables are used to measure and evaluate socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment due to the proposed action, including not only the direct and secondary changes in local employment, but also those personnel who are initially affected by the military action. Income is the total change in local wages and salaries due to the proposed action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the proposed action. Population is, of course, the increase or decrease in the local population as a result of the proposed action.

The RCI initiative at Fort Eustis, Fort Story, and Fort Monroe would require renovation of some existing housing, demolition of some existing housing, construction of new housing, and construction of supporting facilities such as roads, community centers, and walking trails. The current working estimate for the cost of demolition, renovation, and construction of these facilities ($143,800,000) was divided over the projected 5-year development period (2004 through 2008) and entered as the change in expenditures ($28,760,000 per year).

The Significance of Socioeconomic Impacts

Once model projections are obtained, the Rational Threshold Value (RTV) profile allows the user to evaluate the significance of the impacts. This analytical tool reviews the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, income, employment, and population. These evaluations identify the positive and negative changes within which a project can affect the local economy without creating a significant impact. The greatest historical changes define the boundaries that provide a basis for comparing an action's impact on the historical fluctuation in a particular area. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables:

		Increase	Decrease
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

These boundaries determine the amount of change that will affect an area. The percentage allowances are arbitrary, but sensible. The maximum positive historical fluctuation is allowed with expansion because economic growth is beneficial. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, military base reductions and closures generally are more injurious to local economics than are expansion.

The major strengths of the RTV are its specificity to the region under analysis and its basis on actual historical data for the region. The EIFS impact model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV technique for measuring the intensity of impacts have been reviewed by economic experts and have been deemed theoretically sound.

The following are the EIFS inputs and output data for construction and the RTV values for the ROI. These data form the basis for the socioeconomic impact analysis presented in Sections 4.1.9.2, 4.2.9.2 and 4.3.9.2.

EIFS REPORT

PROJECT NAME

Fort Eustis, Fort Story, and Fort Monroe RCI EA

STUDY AREA

51095 James City, VA
51199 York, VA
51550 Chesapeake, VA
51650 Hampton, VA
51700 Newport News, VA
51710 Norfolk, VA
51735 Poquoson, VA
51740 Portsmouth, VA
51810 Virginia Beach, VA
51830 Williamsburg, VA

FORECAST INPUT

Change In Local Expenditures	$28,760,000
Change In Civilian Employment	0
Average Income of Affected Civilian	$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3.08	
Income Multiplier	3.08	
Sales Volume – Direct	$19,422,340	
Sales Volume – Induced	$40,398,460	
Sales Volume – Total	$59,820,800	0.19%
Income – Direct	$5,256,453	
Income - Induced	$10,933,420	
Income - Total(place of work)	$16,189,880	0.05%
Employment – Direct	128	
Employment – Induced	267	
Employment – Total	395	0.05%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	10.94%	10.75%	2.94%	1.83%
Negative RTV	-7.07%	-5.77%	-3.15%	-0.77%

RTV DETAILED

SALES VOLUME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	3142536	13732882	0	0	0
1970	3275931	13529595	-203287	-634988	-4.69
1971	3575701	14159776	630181	198480	1.4
1972	3977197	15232664	1072888	641187	4.21
1973	4431338	15997130	764466	332765	2.08
1974	4958127	16113913	116783	-314918	-1.95
1975	5270990	15707550	-406362	-838063	-5.34
1976	5779738	16298861	591310	159609	0.98
1977	6453575	17037439	738578	306877	1.8
1978	7256051	17849886	812447	380746	2.13
1979	7937870	17542693	-307193	-738894	-4.21
1980	8913580	17292346	-250347	-682048	-3.94
1981	10087320	17753683	461337	29636	0.17
1982	11050348	18343577	589894	158193	0.86
1983	11985229	19296219	952642	520941	2.7
1984	13642095	21008826	1712607	1280906	6.1
1985	14829795	22096395	1087569	655868	2.97
1986	15882649	23188668	1092273	660572	2.85
1987	17111402	26522672	3334004	2902303	10.94
1988	18112845	24633469	-1889203	-2320904	-9.42
1989	18912772	24397475	-235994	-667695	-2.74
1990	19861198	24429274	31799	-399902	-1.64
1991	20559832	24260601	-168673	-600374	-2.47
1992	21681082	24716433	455832	24131	0.1
1993	22313976	24768514	52081	-379620	-1.53
1994	22925533	24759577	-8937	-440638	-1.78
1995	23272499	24436123	-323454	-755155	-3.09
1996	24335121	24821823	385700	-46001	-0.19
1997	25446805	25446805	624982	193281	0.76
1998	26578032	26046472	599667	167966	0.64
1999	27920387	26803571	757099	325398	1.21
2000	29620779	27547325	743754	312053	1.13

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	3481954	15216139	0	0	0
1970	3658610	15110060	-106079	-710914	-4.7
1971	4017899	15910880	800820	195985	1.23
1972	4436984	16993648	1082768	477933	2.81
1973	4949573	17867958	874310	269475	1.51
1974	5562097	18076815	208857	-395978	-2.19
1975	6026141	17957900	-118915	-723750	-4.03
1976	6616713	18659130	701230	96395	0.52
1977	7354314	19415390	756260	151425	0.78
1978	8275682	20358178	942788	337953	1.66
1979	9209997	20354094	-4084	-608919	-2.99
1980	10509783	20388980	34886	-569949	-2.8
1981	11987284	21097620	708640	103805	0.49
1982	13119565	21778477	680858	76023	0.35
1983	14247896	22939113	1160635	555800	2.42
1984	16113292	24814469	1875356	1270521	5.12
1985	17385522	25904428	1089959	485124	1.87
1986	18702670	27305899	1401471	796636	2.92
1987	20176515	31273597	3967698	3362863	10.75
1988	21581757	29351190	-1922407	-2527242	-8.61
1989	22961162	29619898	268708	-336127	-1.13
1990	24208237	29776132	156234	-448601	-1.51
1991	25302538	29856994	80862	-523973	-1.75
1992	26724065	30465434	608440	3605	0.01
1993	27737133	30788218	322784	-282051	-0.92
1994	28737265	31036247	248029	-356806	-1.15
1995	29376994	30845842	-190405	-795240	-2.58
1996	30847100	31464041	618199	13364	0.04
1997	32194944	32194944	730903	126068	0.39
1998	33858992	33181813	986869	382034	1.15
1999	35127106	33722021	540208	-64627	-0.19
2000	37172964	34570857	848836	244001	0.71

EMPLOYMENT

Year	Value	Change	Deviation	%Deviation
1969	509313	0	0	0
1970	498049	-11264	-23395	-4.7
1971	497330	-719	-12850	-2.58
1972	506699	9369	-2762	-0.55
1973	530116	23417	11286	2.13
1974	545867	15751	3620	0.66
1975	535719	-10148	-22279	-4.16
1976	545269	9550	-2581	-0.47
1977	566305	21036	8905	1.57
1978	592491	26186	14055	2.37
1979	600154	7663	-4468	-0.74
1980	612014	11860	-271	-0.04
1981	620428	8414	-3717	-0.6
1982	627509	7081	-5050	-0.8
1983	646935	19426	7295	1.13
1984	679046	32111	19980	2.94
1985	712070	33024	20893	2.93
1986	740810	28740	16609	2.24
1987	773975	33165	21034	2.72
1988	789664	15689	3558	0.45
1989	803533	13869	1738	0.22
1990	814856	11323	-808	-0.1
1991	804165	-10691	-22822	-2.84
1992	811046	6881	-5250	-0.65
1993	817810	6764	-5367	-0.66
1994	819949	2139	-9992	-1.22
1995	831324	11375	-756	-0.09
1996	846438	15114	2983	0.35
1997	860516	14078	1947	0.23
1998	869935	9419	-2712	-0.31
1999	881363	11428	-703	-0.08
2000	897517	16154	4023	0.45

POPULATION

Year	Value	Change	Deviation	%Deviation
1969	984978	0	0	0
1970	999595	14617	1095	0.11
1971	1009962	10367	-3155	-0.31
1972	1007996	-1966	-15488	-1.54
1973	1028105	20109	6587	0.64
1974	1045819	17714	4192	0.4
1975	1052614	6795	-6727	-0.64
1976	1065489	12875	-647	-0.06
1977	1082877	17388	3866	0.36
1978	1090360	7483	-6039	-0.55
1979	1090332	-28	-13550	-1.24
1980	1099148	8816	-4706	-0.43
1981	1123305	24157	10635	0.95
1982	1129895	6590	-6932	-0.61
1983	1158684	28789	15267	1.32
1984	1183326	24642	11120	0.94
1985	1192874	9548	-3974	-0.33
1986	1222923	30049	16527	1.35
1987	1259490	36567	23045	1.83
1988	1283849	24359	10837	0.84
1989	1298818	14969	1447	0.11
1990	1321136	22318	8796	0.67
1991	1332304	11168	-2354	-0.18
1992	1363518	31214	17692	1.3
1993	1381877	18359	4837	0.35
1994	1389713	7836	-5686	-0.41
1995	1393723	4010	-9512	-0.68
1996	1397461	3738	-9784	-0.7
1997	1399071	1610	-11912	-0.85
1998	1396646	-2425	-15947	-1.14
1999	1404502	7856	-5666	-0.4
2000	1417685	13183	-339	-0.02

****** End of Report ******

APPENDIX E

Solid Waste Generation Model Results Table

		Total Gross Sq Ft	C&D Factor*	Pounds of Waste	Waste in Tons	Timeframe
FORT EUSTIS						71 mo
Demolition						
	Inchon	274,983	115	31,623,045	15,812	
	Cherbourg	130,391	115	14,994,965	7,497	
	LeHavre	74,756	115	8,596,940	4,298	
	St Nazaire	37,984	115	4,368,160	2,184	
	Okinawa	483,941	115	55,653,215	27,827	
	Marseilles	127,809	115	14,698,035	7,349	
	Antwerp	66,924	115	7,696,260	3,848	
	Farmhouses	33,865	115	3,894,475	1,947	
Renovation						
	New Port	32,085	19.8	635,283	318	
Construction						
	North Village	719,896	4.38	3,153,144	1,577	
	South Village	675,462	4.38	2,958,524	1,479	
Total Debris:					**74,136**	
					avg 1,044 ton/mo	
FORT STORY						48 mo
Demolition						
	300 Area	165,080	115	18,984,200	9,492	
	400 Area	408,438	115	46,970,370	23,485	
	Stand Alone	23,678	115	2,722,970	1,361	
Renovation						
	Stand Alone	8,610	19.8	170,478	85	
Construction						
	Cape Hart	376,594	4.38	1,649,482	825	
	Officer's	13,685	4.38	59,940	30	
Total Debris:					**35,279**	
					avg 735 ton/mo	
FORT MONROE						43 mo
Demolition						
	Wherry	208,260	115	23,949,900	11,975	
Construction**						
	North Village	33,580	4.38	147,080	74	
	South Village	127,468	4.38	558,310	279	
Total Debris:					**12,328**	
					avg 287 ton/mo	

* Source: USEPA, 1998

** estimated: square footages not provided

APPENDIX F

Agency Correspondence

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

CENAOPM-E (Richard Muller)

June 26, 2002

J. Christopher Ludwig
Department of Conservation and Recreation
Division of Natural Heritage
217 Governor St., 3rd Floor
Richmond, VA 23219

Dear Mr. Ludwig:

The U.S. Army is preparing an Environmental Assessment (EA) for the implementation of the Residential Communities Initiative (RCI) program at Forts Eustis, Story, and Monroe in the Hampton Roads area of Virginia. Fort Eustis is situated in the City of Newport News, Fort Story is within the City of Virginia Beach, and Fort Monroe is located in the City of Hampton.

The purpose of the EA is to discuss the potential effects on environmental resources associated with the RCI program, which will privatize the renovation, construction and management of housing facilities at Forts Eustis, Story, and Monroe. The sizes, configurations, safety, and condition of existing installation housing units are substantially below the Army's standards of acceptability. Under the proposed action, family housing would be brought up to acceptable standards through demolition of old units and construction of new units. In addition, renovation and modernization work would bring units not slated for demolition up to the Army's standards of acceptability. To enable exercise of ownership and control over the housing, the Army would convey all present family housing structures at all three installations to a single private Development Partner. The Army would also lease land within housing areas to the Development Partner for a period of 50 years.

Fort Eustis. Family housing currently consists of 952 housing units occupying about 150 acres on the east side of the installation's cantonment area. In addition, 192 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. Some of the undeveloped property is forested natural area adjacent to wetlands along the Warwick River.

Fort Story. Family housing currently consists of 164 of housing units occupying about 50 total acres consisting of one large contiguous parcel on the east side of the installation's cantonment area and eight small parcels scattered throughout the remainder of the cantonment area. In addition, 177 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. The undeveloped property includes some beach dune habitats adjacent to the Atlantic Ocean.

Fort Monroe. There are 206 housing units without historic status in the Wherry neighborhood that would be subject to renovation or demolition and reconstruction under the RCI program. Wherry housing occupies about 27.5 total acres in the eastern and northern portions of the installation's cantonment area. Five acres of vacant land in the cantonment area would also be leased to the Development Partner to accommodate proposed new housing construction. The

Development Partner would have the option of leasing and managing an additional 183 historic housing units on 44.5 acres in the southern and western portions of the installation.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns such as fish and wildlife habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location maps of Forts Eustis, Story, and Monroe.

Please note that areas shaded in green on the Fort Monroe maps and areas outlined in pink on the Fort Eustis and Fort Story maps are the full range of candidate locations considered by the EA. Final selection of RCI footprints will fall completely within one or more (but not all) of these locations. Areas outlined in pink are all the candidate locations considered by the EA. Final selection of RCI footprints will fall completely within one or more (but not all) of these locations.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 24 July 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment in fall 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller

ATTCH: A/S

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

CENAO-PM-E (Richard Muller)

June 26, 2002

Mr. Timothy E. Goodger, Officer in Charge
National Marine Fisheries Service
Habitat Conservation District
904 South Morris Street
Oxford, MD 21654

Dear Mr. Goodger:

The U.S. Army is preparing an Environmental Assessment (EA) for the implementation of the Residential Communities Initiative (RCI) program at Forts Eustis, Story, and Monroe in the Hampton Roads area of Virginia. Fort Eustis is situated in the City of Newport News, Fort Story is within the City of Virginia Beach, and Fort Monroe is located in the City of Hampton.

The purpose of the EA is to discuss the potential effects on environmental resources associated with the RCI program, which will privatize the renovation, construction and management of housing facilities at Forts Eustis, Story, and Monroe. The sizes, configurations, safety, and condition of existing installation housing units are substantially below the Army's standards of acceptability. Under the proposed action, family housing would be brought up to acceptable standards through demolition of old units and construction of new units. In addition, renovation and modernization work would bring units not slated for demolition up to the Army's standards of acceptability. To enable exercise of ownership and control over the housing, the Army would convey all present family housing structures at all three installations to a single private Development Partner. The Army would also lease land within housing areas to the Development Partner for a period of 50 years.

Fort Eustis. Family housing currently consists of 952 housing units occupying about 150 acres on the east side of the installation's cantonment area. In addition, 192 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. Some of the undeveloped property is forested natural area adjacent to wetlands along the Warwick River.

Fort Story. Family housing currently consists of 164 of housing units occupying about 50 total acres consisting of one large contiguous parcel on the east side of the installation's cantonment area and eight small parcels scattered throughout the remainder of the cantonment area. In addition, 177 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. The undeveloped property includes some beach dune habitats adjacent to the Atlantic Ocean.

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Development Partner would have the option of leasing and managing an additional 183 historic housing units on 44.5 acres in the southern and western portions of the installation.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns such as fish and wildlife habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location maps of Forts Eustis, Story, and Monroe.

Please note that areas shaded in green on the Fort Monroe maps and areas outlined in pink on the Fort Eustis and Fort Story maps are the full range of candidate locations considered by the EA. Final selection of RCI footprints will fall completely within one or more (but not all) of these locations. Areas outlined in pink are all the candidate locations considered by the EA. Final selection of RCI footprints will fall completely within one or more (but not all) of these locations.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 24 July 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment in fall 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller

ATTCH: A/S

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

CENAO-PM-E (Richard Muller)

June 24, 2002

Ms. Karen Mayne
U.S. Fish and Wildlife Service
Division of Ecological Services
P.O. Box 99
Gloucester, VA 23061

Dear Ms. Mayne:

The U.S. Army is preparing an Environmental Assessment (EA) for the implementation of the Residential Communities Initiative (RCI) program at Forts Eustis, Story, and Monroe in the Hampton Roads area of Virginia. Fort Eustis is situated in the City of Newport News, Fort Story is within the City of Virginia Beach, and Fort Monroe is located in the City of Hampton.

The purpose of the EA is to discuss the potential effects on environmental resources associated with the RCI program, which will privatize the renovation, construction and management of housing facilities at Forts Eustis, Story, and Monroe. The sizes, configurations, safety, and condition of existing installation housing units are substantially below the Army's standards of acceptability. Under the proposed action, family housing would be brought up to acceptable standards through demolition of old units and construction of new units. In addition, renovation and modernization work would bring units not slated for demolition up to the Army's standards of acceptability. To enable exercise of ownership and control over the housing, the Army would convey all present family housing structures at all three installations to a single private Development Partner. The Army would also lease land within housing areas to the Development Partner for a period of 50 years.

Fort Eustis. Family housing currently consists of 952 housing units occupying about 150 acres on the east side of the installation's cantonment area. In addition, 192 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. Some of the undeveloped property is forested natural area adjacent to wetlands along the Warwick River.

Fort Story. Family housing currently consists of 164 of housing units occupying about 50 total acres consisting of one large contiguous parcel on the east side of the installation's cantonment area and eight small parcels scattered throughout the remainder of the cantonment area. In addition, 177 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. The undeveloped property includes some beach dune habitats adjacent to the Atlantic Ocean.

Fort Monroe. There are 206 housing units without historic status in the Wherry neighborhood that would be subject to renovation or demolition and reconstruction under the RCI program. Wherry housing occupies about 27.5 total acres in the eastern and northern portions of the installation's cantonment area. Five acres of vacant land in the cantonment area would also be leased to the Development Partner to accommodate proposed new housing construction. The

Development Partner would have the option of leasing and managing an additional 183 historic housing units on 44.5 acres in the southern and western portions of the installation.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns such as fish and wildlife habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location maps of Forts Eustis, Story, and Monroe.

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To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 24 July 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment in fall 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller

ATTCH: A/S

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

CENAO-PM-E (Richard Muller)

June 26, 2002

Mr. Raymond T. Fernald
Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

Dear Mr. Fernald:

The U.S. Army is preparing an Environmental Assessment (EA) for the implementation of the Residential Communities Initiative (RCI) program at Forts Eustis, Story, and Monroe in the Hampton Roads area of Virginia. Fort Eustis is situated in the City of Newport News, Fort Story is within the City of Virginia Beach, and Fort Monroe is located in the City of Hampton.

The purpose of the EA is to discuss the potential effects on environmental resources associated with the RCI program, which will privatize the renovation, construction and management of housing facilities at Forts Eustis, Story, and Monroe. The sizes, configurations, safety, and condition of existing installation housing units are substantially below the Army's standards of acceptability. Under the proposed action, family housing would be brought up to acceptable standards through demolition of old units and construction of new units. In addition, renovation and modernization work would bring units not slated for demolition up to the Army's standards of acceptability. To enable exercise of ownership and control over the housing, the Army would convey all present family housing structures at all three installations to a single private Development Partner. The Army would also lease land within housing areas to the Development Partner for a period of 50 years.

Fort Eustis. Family housing currently consists of 952 housing units occupying about 150 acres on the east side of the installation's cantonment area. In addition, 192 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. Some of the undeveloped property is forested natural area adjacent to wetlands along the Warwick River.

Fort Story. Family housing currently consists of 164 of housing units occupying about 50 total acres consisting of one large contiguous parcel on the east side of the installation's cantonment area and eight small parcels scattered throughout the remainder of the cantonment area. In addition, 177 acres of additional undeveloped property would be leased to the Development Partner to accommodate proposed new housing construction. The undeveloped property includes some beach dune habitats adjacent to the Atlantic Ocean.

Fort Monroe. There are 206 housing units without historic status in the Wherry neighborhood that would be subject to renovation or demolition and reconstruction under the RCI program. Wherry housing occupies about 27.5 total acres in the eastern and northern portions of the installation's cantonment area. Five acres of vacant land in the cantonment area would also be leased to the Development Partner to accommodate proposed new housing construction. The

Development Partner would have the option of leasing and managing an additional 183 historic housing units on 44.5 acres in the southern and western portions of the installation.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns such as fish and wildlife habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location maps of Forts Eustis, Story, and Monroe.

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To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 24 July 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment in fall 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller

ATTCH: A/S

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

CENAO-PM-E (Richard Muller)

June 26, 2002

Mr. Robert Grabb, Chief
Virginia Marine Resources Commission
Habitat Management Division
2600 Washington Avenue
Newport News, VA 23607

Dear Mr. Grabb:

The U.S. Army is preparing an Environmental Assessment (EA) for the implementation of the Residential Communities Initiative (RCI) program at Forts Eustis, Story, and Monroe in the Hampton Roads area of Virginia. Fort Eustis is situated in the City of Newport News, Fort Story is within the City of Virginia Beach, and Fort Monroe is located in the City of Hampton.

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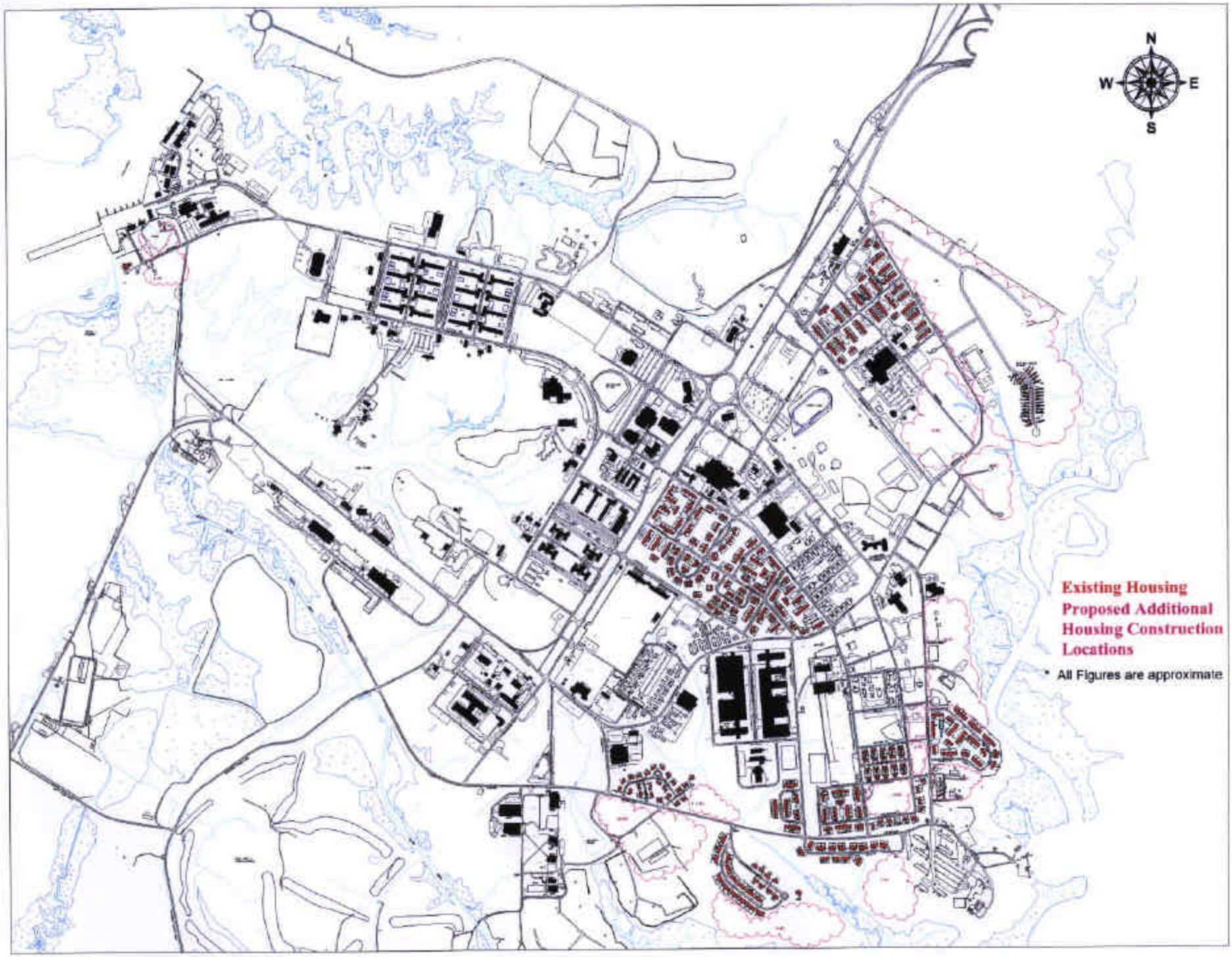
To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 24 July 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment in fall 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

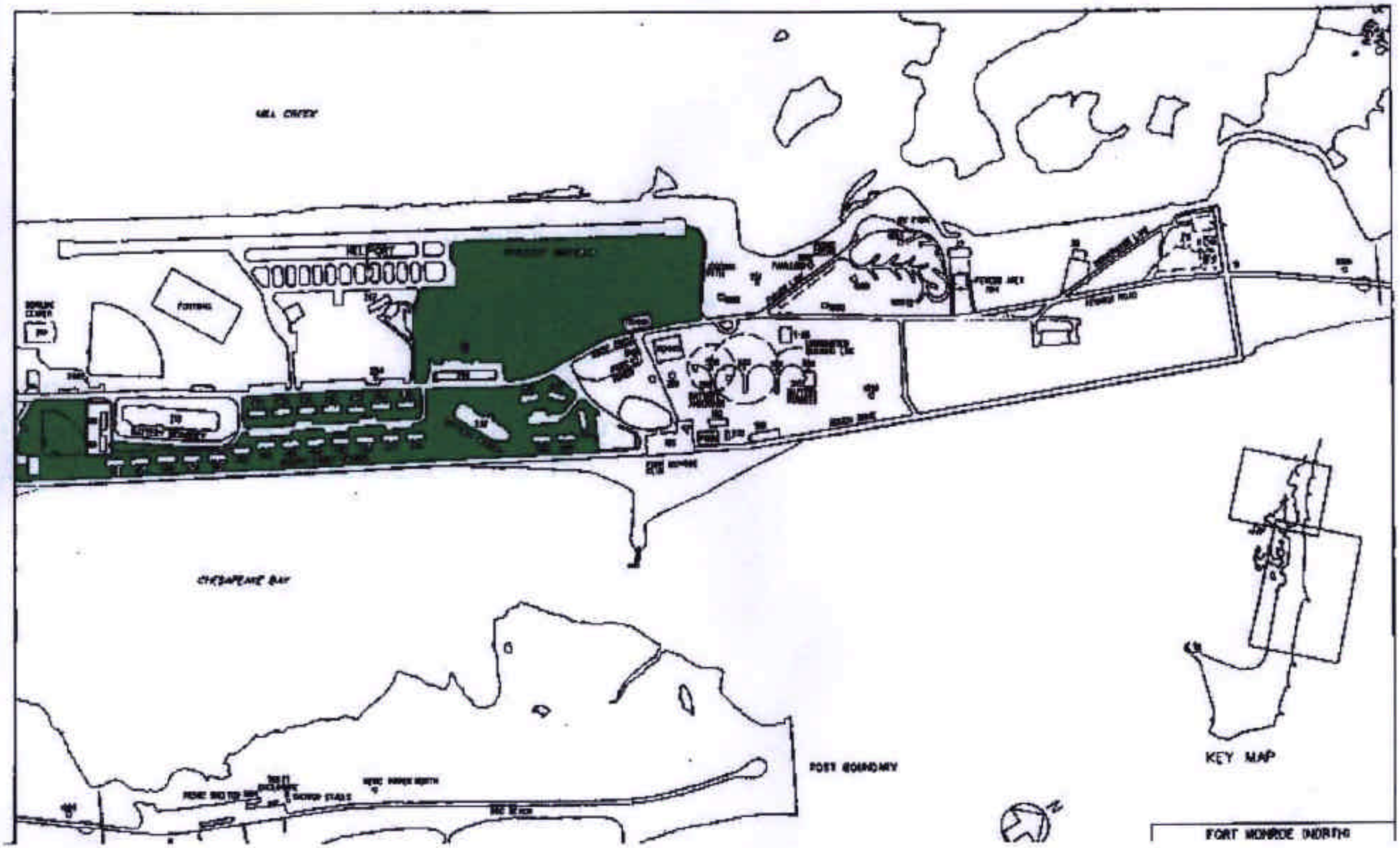
Sincerely,

Richard J. Muller

ATTCH: A/S


N
W
E
S
Existing Housing
Proposed Additional Housing Construction Locations
* All Figures are approximate


N
KEY MAP
½ MILE
FORT MONROE (SOUTH)
INSTALLATION SITE MAP
B & K ENGINEERING
OCTOBER 1989


MILL CREEK
CHESAPEAKE BAY
POST BOUNDARY
KEY MAP
FORT MONROE NORTH


N
W
E
S
CHESAPEAKE BAY
ATLANTIC OCEAN
WEST ENTRANCE
35 AC
71 AC
36 AC
EAST ENTRANCE
* Acres are approximated

DEPARTMENT OF THE ARMY
HEADQUARTERS FORT MONROE
102 MCNAIR DRIVE
FORT MONROE, VIRGINIA 23651-1047

July 19, 2002

REPLY TO ATTENTION OF
Environmental Division

Ms. Kathleen Kilpatrick
State Historic Preservation Officer
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Ms. Kilpatrick:

This letter is to initiate consultation between Fort Monroe and the Virginia Department of Historic Resources concerning the Army Residential Communities Initiative (RCI) for privatization of housing. Please assign us a VDHR file number for this project, which will be an on-going process of consultation for some time.

Through the enactment of Section 2801 of the 1996 Defense Authorization Act (Public Law 104-106, codified at Title 10 of the United States Code [U.S.C.] Sections 1871-85), also known as the Military Housing Privatization Initiative (MHPI), Congress created alternative authorities for improvement and construction of military family housing. The Army's implementation of the MHPI authorities is known as the RCI. The RCI announcements and documents will cover Fort Monroe, Fort Eustis, and Fort Story as a single package, but each installation is individually coordinating the action.

Housing at Fort Monroe consists of two main types: 1) Wherry Housing (Monroe Apartments) and 2) Historical Units. Enclosure 1 is a map showing the locations of the different housing types. The Monroe Apartments were constructed in 1952 under the nationwide Wherry Military Family Housing program. Originally all Wherry Housing was privately built and most later were purchased by the government. If you would like a copy of the 179-page nationwide Capehart and Wherry Housing context study, "For Want of a Home..." prepared by the U.S. Army Environmental Center, please contact Pamela

7/19/02

Schenian at (757) 788-5365, and she will transmit it to you electronically.

The Wherry housing at Fort Monroe is considered substandard by current U.S. Army Housing Adequacy Standards, which focus on size, configuration, safety, condition, services, and amenities that make housing equivalent with contemporary standards of livability. The Wherry Housing units are considered non-contributing elements in the Fort Monroe National Historic District, because they were constructed after the district's period of significance (1819-1946). Nationwide, the Army has met its Section 106 responsibilities for the maintenance and repair, layaway and mothballing, renovation, demolition, demolition and replacement, and transfer, sale or lease out of federal control through the "Program Comment for Capehart and Wherry Era Army Family Housing and Associated Structures and Landscape Features (1949-1962)." Copies of this document and of the June 11, 2002, Memorandum for See Distribution, "Capehart and Wherry Era Family Housing Program Comments issued by Advisory Council on Historic Preservation" are at Enclosure 2.

The Wherry Housing on Fort Monroe is government-owned, but leased to Bush, Inc. for management of the property. It is proposed that the management of the Monroe Apartments will revert back to the Army in March 2003 when the lease expires and will be offered to development partners through the RCI process. It is proposed that the Wherry Housing will be demolished and replaced with new housing units. The new housing will be designed in accordance with the Installation Design Guidelines and coordinated with VDHR at an appropriate time. Photographs of representative Wherry Housing units are at Enclosure 3.

The Historic Housing units are contributing elements in the NHL district, and are described in Volume 2 of the Historic Architecture Repair and Maintenance Plan, which is currently under review by your staff. Although these will be offered to a development partner in the RCI process, the partner may opt to accept all or none of the historic housing. If the development partner does not accept the historic housing, Fort Monroe will continue management of these.

It is our intent that the historic housing accepted by the development partner will be maintained in accordance with the Secretary of the Interior's standards for rehabilitation.

We will provide you with additional information as it becomes available to us. If you have any questions, please contact Pamela Schenian at (757) 788-5365.

Sincerely,

Charles A. Boaz, Jr.
Lieutenant Colonel, U.S. Army
Director, Public Works

Enclosures

COMMONWEALTH of VIRGINIA

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.state.va.us

August 5, 2002

LTC Charles A. Boaz, Jr.
Director, Public Works
Headquarters Fort Monroe
102 McNair Drive
Fort Monroe, Virginia 23651-1047

Re: Army Residential Communities Initiative (RCI)
Fort Monroe, Virginia
DHR File No. 2002-1167

Dear Colonel Boaz:

We have received your letter initiating consultation with our office regarding the Army Residential Communities Initiative (RCI) and requesting the assignment of a Department of Historic Resources project file number for this undertaking. We assigned the aforementioned undertaking the project number 2002-1167. Please refer to this number in all future correspondences with DHR concerning the RCI program.

It is our understanding that the Army proposes to collaborate with a private civilian developer in order to construct, rehabilitate, and manage its on-post housing at Fort Monroe. This initiative may result in the transfer out of federal ownership of some or all of the historic housing at Fort Monroe. As defined in 36 CFR 800.5(a)(2)(vii), an adverse effect to historic properties includes the "transfer, lease, or sale of property out of Federal ownership or control without adequate legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance." Therefore, any transfer of contributing resources to the Fort Monroe Historic District from the Army to private ownership will require protective covenants written into the deed. DHR and possibly the Advisory Council on Historic Preservation (ACHP) would have to approve the language used in these covenants.

Due to the significance of Fort Monroe and the potential of RCI to affect historic resources, close consultation by the Army with DHR is essential. The scope and duration of this project may require that the Army develop a Programmatic Agreement with our office in order to establish a systematic and comprehensive approach to meeting its Section 106 responsibilities. In addition,

because of Fort Monroe's status as a National Historic Landmark it is advisable to notify the ACHP and the National Park Service of the intentions of the Army and afford them the opportunity to take part in the review process.

We look forward to working closely with Fort Monroe and the Army in this matter. If you have any questions about the Section 106 review process or our comments, please call me at (804) 367-2323, Ext. 114.

Sincerely,

Marc Holma, Architectural Historian
Division of Resource Services and Review

DEPARTMENT OF THE ARMY
US ARMY TRANSPORTATION CENTER
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, VA 23604-5306

JUL 29 2002

REPLY TO ATTENTION OF:

Environmental Division

Ms. Kathleen Kilpatrick
State Historic Preservation Officer
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Ms. Kilpatrick:

Forts Eustis and Story are preparing Environmental Assessments (EA) for the implementation of the Residential Communities Initiative (RCI) program. The purpose of the EA is to determine the potential effects on environmental resources associated with the RCI program. This proposed action will privatize the renovation, construction and management of housing facilities. It is intended to improve Army family housing by providing affordable, quality, and an adequate number of housing units on the installations. The new proposed housing footprints are identified on the attached maps.

Through the enactment of Section 2801 of the 1996 Defense Authorization Act (Public Law 104-106, codified at Title 10 of the United States Code [U.S.C.] Sections 1871-85), also known as the Military Housing Privatization Initiative (MHPI), Congress created alternative authorities for improvement and construction of military family housing. The Army's implementation of the MHPI authorities is known as the RCI. The RCI announcements and documents will cover Fort Monroe, Fort Eustis and Fort Story as a single package, but Fort Monroe will be individually coordinating this action from Forts Eustis and Story.

The purpose of this letter is to initiate the consultation process with the Virginia Department of Historic Resources (VDHR) concerning cultural resources that may be affected due to RCI, and to facilitate the continued implementation of the RCI program. Please assign us a VDHR file number for this project, which will be an on-going process of consultation for some time. The program is in the early stages of evaluation and development, as more information becomes available, the VDHR will continuously be consulted and updated. In the event that any cultural resource is encountered during the implementation, the necessary precautions will be taken and the VDHR will be consulted.

I do not foresee any adverse effects to known cultural resources on the installations regarding implementation of the RCI program. This determination is made with the understanding that all work shall comply with the applicable regulations, and adhere to the standards pertaining to protection and preservation of cultural resources. We will continue to consult with the VDHR on specific plans and details as they become available and as work progresses.

Thank you for your assistance. If you have any questions, or require additional information, please contact Stephen McCall at (757) 878-4123, x-294.

Sincerely,

James F. Brooks, Jr
Lieutenant Colonel, US Army
Director of Public Works

Enclosures

COMMONWEALTH of VIRGINIA

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.state.va.us

August 2, 2002

Mr. Stephen A. McCall
Environmental and Natural Resources Division
United States Army Transportation Center
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, Virginia 23604-5306

Re: Residential Communities Initiative (RCI)
Fort Story/Ft. Eustis, Virginia
DHR File No. 2002-1188

Dear Mr. McCall:

We have received your letter requesting a Department of Historic Resources (DHR) Project File Number for the above referenced undertaking. We have assigned this project the file number 2002-1188. All future correspondences should reference this project file number. We look forward to working with Ft. Story/Ft. Eustis on this undertaking.

If you have any questions about the Section 106 review process or our comments, please call me at (804) 367-2323, Ext. 114.

Sincerely,

Marc Holma, Architectural Historian
Division of Resource Services and Review

Administrative Svcs.
10 Courthouse Avenue
Petersburg, VA 23803
Tel: (804) 863-1538
Fax: (804) 862-6196

Petersburg Office
19-B Bollingbrook Street
Petersburg, VA 23803
Tel: (804) 863-1620
Fax: (804) 863-1627

Portsmouth Office
612 Court Street, 3rd Floor
Portsmouth, VA 23704
Tel: (757) 396-6709
Fax: (757) 396-6712

Roanoke Office
1030 Penmar Avenue, SE
Roanoke, VA 24013
Tel: (540) 857-7585
Fax: (540) 857-7588

Winchester Office
107 N. Kent Street, Suite 203
Winchester, VA 22601
Tel: (540) 722-3427
Fax: (540) 722-7538

ACRONYMS and ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
ACS	Army Community Service
AR	Army Regulation
AQCR	Air Quality Control Region
AWOL	absent without leave
BAH	Basic Allowance for Housing
BEA	Bureau of Economic Analysis
BMP	best management practice
BOCA	Building Officials and Code Administrators International, Inc.
CCF	hundred cubic feet
CD	compact disc
CDC	Child Development Center
CDMP	Community Development Management Plan
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CGOQ	Company Grade Officer Quarters
CZMA	Costal Zone Management Act
DA	Department of the Army
dB	decibel
DeCA	Defense Commissary Agency
DEQ	Virginia Department of Environmental Quality
DOC	Department of Commerce
DoD	Department of Defense
DPW/L	Directorate of Public Works and Logistics
E	enlisted
EA	environmental assessment
EBS	environmental baseline survey
EIFS	Economic Impact Forecast System
EO	Executive Order
FESMFH	Forts Eustis, Story, and Monroe Family Housing, LLC
FNSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
HARAM	Historic Architectural Repair and Maintenance Plan
ICRMP	Integrated Cultural Resources Management Plan
KWH	kilowatt-hour
LBP	lead-based paint
LMU	land management units
MHPI	Military Housing Privatization Initiative
MP	Military Police
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NCO	Noncommissioned Officer
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places

OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyls
pCi/L	picocuries per liter
PCPI	per capita personal income
PMO	Provost Marshall's Office
PVC	polyvinyl chloride
PX	Post Exchange
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
RFQ	Request for Qualifications
ROI	Region of Influence
RPMP	Real Property Management Plan
RTV	Rational Threshold Value
SGOQ	Senior Grade Officer Quarters
SHPO	State Historic Preservation Officer
SNCOQ	Senior Noncommissioned Officer Quarters
SWPPP	Storm Water Pollution Prevention Plan
TRADOC	US Army Training and Doctrine Command
TSCA	Toxic Substances Control Act
US, U.S.	Untied States
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
UXO	unexploded ordnance
VA	Virginia
VCP	Virginia Coastal Resources Management Program
WIC	Women, Infants, and Children
WO	Warrant Officer